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ABSTRACT

This report presents a comparative analysis of five Asian systems that use communications technologies on a large scale for educational purposes. Part 1 provides background on the project and describes two meetings, one of which launched the project and a second, at which self-analyses were made. The national contexts of the systems and their responses are also described. This brief analysis looks at the main elements in three phases of development of the five national educational systems: planning, designs and structures, and educational and administrative processes. Resource factors relating to the use of communications technologies are considered. The cost structures, resource costs, and financing aspects of the five systems are described. Part 2 discusses five key issues: access and equity, the quality of learning, the effectiveness of use of communications technology, management, and resource factors. Appendixes in this section include a framework for the project methodology and cost analysis questionnaire. Part 3 contains the five Asian case studies: Central Institute of Educational Technology, India; Central Radio and TV University, China; Indira Gandhi National Open University, India; Sukhothai Thammathirat Open University, Thailand; and Universitas Terbuka, Indonesia. Each case study consists of these sections: context, input--system design, educational process, costs, and educational outcomes. (YLB)

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Developments in Distance Education in Asia

an analysis of five case studies

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DEVELOPMENTS IN DISTANCE EDUCATION IN ASIA

: AN ANALYSIS OF FIVE CASE STUDIES

Unesco / ICDE

PREFACE

Distance education as an alternative way of gaining access to knowledge has been given increasing attention over the past two decades. A significant number of distance education systems have been established in developing countries and are operating with varying degrees of success, given the widely different contexts and constraints within which each must operate. Some of the largest operation are to be found in the Asian region, and it is their analysis which the present publication offers to the decision-maker and the specialist.

Although this analysis is the result of a co-operative effort of the representatives of the five distance education systems described, much of its merit is due to the steadfast support of Kevin Smith, Project Co-ordinator, and immediate Past President of the international Council for Distance Education, who also put the analysis in its final form. Chris Curran, Director fo the National Distance Education Centre of Dublin City University, ireland, wrote the chapter on 'Resource Factors'.

Unesco wishes to thank the representatives of the participating institutions for their willingness to compile the case studies which provided the essential basis for this analysis:

- Dr Aria Djalil, Universitas Terbuka, Indonesia;
- Professor G. Ram Reddy and Dr S.B. Menon, Indira Gandhi National Open University, India;
- Dr Jagdish Singh, Central Institute of Educational Technology, India;
- Dr Prayoon Sriprasart, Sukhothai Thammathirat Open University, Thailand;
- Mr Zhao Yuhui, Central Radio and TV University, China.

Special thanks are due to the International Council for Distance Education for the generous help towards the publication of the text.

The designations employed and the presentation of the material in this work do not imply the expression of any opinion whatsoever on the part of the Unesco Secretariat concerning the legal status of any country or territory, or its authorities, or concerning the delineation of its frontiers. The opinions expressed in the following pages are those of the authors and do not necessarily reflect those of Unesco.

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PART 1 :
ANALYSIS

CHAPTER 1 :
THE PROJECT IN OUTLINE

1.1 The Background

Within the framework of Unesco's programme for 1986–1987, it was decided that a joint project in co-operation with the International Council for Distance Education (ICDE) should be undertaken to make a comparative analysis of five Asian systems using communications technologies on a large scale for educational purposes.

The experience of what might be loosely defined as five 'distance education' systems is presented here with three broad objectives:

1. To inform policy-makers considering the adoption of distance education as an appropriate response to widening access to education;
2. To provide information to individuals setting up distance education systems with particular regard to critical parameters influencing educational quality and resource implications;
3. To provide information as an input to the review and reform of existing distance education systems.

It is also hoped that this report, though focussing on the Asian region, will be seen to have a wider application than this for distance education systems wherever they may be, but especially for those being planned for, or already operating in, developing countries.

The five systems selected were the Central Institute of Educational Technology and the Indira Gandhi National Open University of India, the China Central Radio and TV University of the People's Republic of China, Sukhothai Thammathirat Open University of Thailand and Universitas Terbuka of Indonesia. Although by no means a complete list of the major institutions making large-scale use of communications technologies in Asia, and although they have all been created within the last decade, the systems chosen do reflect significant differences in terms of both their respective periods of growth and development and their current scales of operation. Furthermore, one of them, the Central Institute of Educational Technology, can be distinguished from the four universities by virtue of its representing school level education.

1.2 The Ahmedabad Meeting

The project was launched formally in September 1987, when a preliminary meeting was held at the Development and Educational Communication Unit, Indian Space Research Organisation in Ahmedabad.

In essence, the purposes of the meeting were fourfold:

1. To obtain formal agreement of invited institutions to participate in the project;
2. To accept a common methodology for the analysis of the various distance education systems involved and discuss methods of data collection and presentation;
3. To determine procedures for the implementation of the project;
4. To discuss the nature and scope of the report to Unesco.

The representatives of the participating institutions were as follows:

- Central Institute of Educational Technology, New Delhi, India: Dr Jagdish Singh;
- China Central Radio and TV University, Beijing: Mr Zhao Yuhui, Dean of Academic Affairs;
- Indira Gandhi National Open University, New Delhi, India: Professor G. Ram Reddy, Vice-Chancellor;
- Sukhothai Thammathirat Open University, Bangkok, Thailand: Dr Prayoon Sriprasart, Assistant Director for Special Activity;
- Universitas Terbuka, Jakarta, Indonesia: Dr Aria Djalil, Director of the Research Centre.

Other participants included Dr Binod Agrawal of the Development and Educational Communication Unit, ISRO; Dr B.S. Bhatia of DECU/ISRO; Mr Chris Curran of the National Institute of Higher Education in Dublin as a Resource Person in the Economics of Education; Dr O.S.Dewal of the C.I.E.T. in New Delhi; Dr Geneviève Jacquinot of the University of Paris VIII; Dr S. Joshi of the Space Applications Centre of ISRO; Dr K. Karnik, the Director of ISRO; Mr Herbert Marchl, Head of the Section: Innovation, Contents and Methods of Education at Unesco, Paris; Dr C.H. Mishra of CIET; Mr David Seligman, Unesco Chief Technical Adviser to CIET; and Mr Kevin Smith, President of the International Council for Distance Education and Project Co-ordinator.

At the meeting there was general agreement that the project should attempt to identify the challenges that were being faced by each of the participating institutions and examine the 'solutions' that each was developing in response to these challenges, with a view to determining if there were elements common to the different systems that appeared generally effective and could be recommended to the international community. Conversely, it was felt that if there were policies and practices that appeared generally less successful, they should be identified and recommendations made against their adoption elsewhere unless special precautions were taken. To achieve this, it was agreed that structures and operating processes of the five systems should be described in some detail.

In more specific terms, the objectives to be met by the case studies were laid down as follows:

1. Identify the educational challenges in a national context and the role of distance education in attempting to meet these challenges;
2. Trace the establishment and subsequent development of each system;
3. Describe current organisational structures, teaching methods, delivery systems and student support systems;
4. Provide staff and student profiles;
5. Analyse student performance;
6. Describe cost structures;
7. Identify general trends and future priorities for developments;
8. Assess in broad terms each system's effectiveness in responding to national educational needs.

Since the object of the exercise, then, was not to attempt to assess the worth or otherwise of one system against another in terms of goal-attainment but rather to collect and present information that could help the participant and others to make decisions about developments within their own systems, a conceptual framework based on a 'decision-facilitation' evaluation scheme and not a 'goal-attainment' model was presented by the Project Co-ordinator for consideration by the meeting. It was based on a model developed by Stufflebeam and Guba, a model given the name of CIPP, this being an acronym for four types of evaluation, namely, Context, Input, Process and Product Evaluation. Context Evaluation attempts to isolate the problems or identify unmet needs in an educational setting leading to the identification of general goals and specific objectives; Input Evaluation is essentially concerned with the design of a system to operate within a particular context; Process Evaluation takes place once the teaching process is operational and seeks to identify defects in the procedural design by monitoring the operation of system components; and Product Evaluation emphasises the outcomes as measured during (formative evaluation) and at the end of (summative evaluation) the programme as compared with the objectives or expectations.

In the context of distance education, such an evaluation model can readily be applied to the system as a whole and to its various sub-systems such as Course Development, Production and Delivery, and Student Support (both Academic and Administrative). The participants agreed that more could be gained from the exercise if the case studies went beyond mere description and provided some analysis of a qualitative nature in the four broad areas as designated by the CIPP Evaluation concept.

The final stage of the meeting saw a critical examination of a suggested check list of elements that could be used as a guide for the compilation of the case studies, and appropriate amendments were made to it. The revised version on which the studies were based is included in this report as Appendix A, *Towards a Methodology*.

The meeting also considered a paper prepared by Professor Francois Orivel of IREDU, University of Bourgogne, Dijon, France, entitled, *Analysing Costs in Distance Education Systems: a Methodological Approach*. In the light of discussions, the paper was subsequently revised by Mr Chris Curran of the Dublin City University Ireland, and this revised version in the form of a Cost Analysis Questionnaire (see Appendix B) provided a basis for the preparation of information that is to be found in the case studies in the sections on Costs.

The meeting agreed that drafts of the case studies should be circulated among the participants and sent to the Project Co-ordinator for comments and suggestions so that subsequent drafts could incorporate these suggestions where appropriate and feasible. This was done during 1988. The attendance at the Fourteenth World Conference of ICDE in Oslo from 10th to 16th August of representatives of two of the participating institutions, CRTVU of China and STOU of Thailand, allowed for further discussions of their case studies with the Unesco (H.Q) project representative and the Australian project co-ordinator.

1.3 The Bangkok Meeting

From 6th to 8th December, 1988, at the invitation of Unesco, all participating institutions were represented at a meeting in Bangkok hosted by the President of STOU, Dr Iam Chaya-Ngam. The same individuals who had attended the Ahmedabad meeting a little over a year before were present, the one exception being the attendance of Dr S.B. Menon in place of Professor G. Ram Reddy as IGNOU's representative.

At this Bangkok meeting, participants not only presented their case studies for discussion, comment and clarification but later in the meeting were invited to make a critical self-analysis of their own institutions in the light of the issues raised during the previous two days. These analyses were remarkably frank and incisive and did much to increase the group's appreciation of the value of professionally objective evaluation by those 'on the inside' who are best able to identify the comparative strengths and weaknesses which characterise their particular distance education systems. Indeed, the analysis of the systems in Chapter 3 of the Study and the attempted synthesis of the 'Key Issues' in Chapter 4, reflect many of the insights, revelations and judgments in retrospect that need to be shared with others who find themselves faced with the daunting challenge of attempting to meet critical national educational needs and demands through the creation of large-scale distance education systems. For such systems not only call for the use of a variety of communications technologies but they require the ultimate in management of a complex array of human resources. Co-ordinating these resources effectively is challenge enough in itself, but if the systems are to do more than simply offer access to education and seek also to provide a quality educational experience for massive numbers of students, then the 'key issues' which are examined in this report must be addressed constructively if we are to learn from past experience.

To this end, the five case studies presented in this report reflect some of that 'past experience' from which it is hoped that positive outcomes will be derived.

CHAPTER 2 : THE NATIONAL CONTEXTS : THE CHALLENGES

2.1 Asia

The dimensions of Asia's educational challenges are staggering by any standards. Two-thirds of the world's population, about 3,000 million people, live in Asia. Nearly 700 million have been added to the Asian population in the last 15 years and it is estimated that 800 million will have been added by the year 2,000. This means that the population is increasing by more than 50 million a year. The situation is exacerbated by the fact that a high proportion of the populations in question are young people under the age of 15 years. Estimates would have the figure around 1,000 million. Consequently, despite more than doubling enrolment in education at all levels over the last 25 years or so and an eightfold increase in public education expenditure since 1970, nearly 400 million in the 5–24 years age group remain outside the formal educational system. It is recognised that just to maintain the present levels of primary school enrolment which generally falls far short of full enrolment, the capacity of such schools will have to increase by at least 50%. (Selim 1986)

Although the populations of Asia can generally be regarded as mainly rural with about 70% living outside urban centres, the situation is changing rapidly as migration from villages to towns and to larger cities increases in response to industrialisation processes. Many of the larger Asian cities such as Bangkok, Bombay, Calcutta, Jakarta, Seoul and Manila, are doubling their populations every ten years. The educational challenge for governments in Asia, then, are not only associated with rapid growth in populations but are related to the social dynamics of changes in composition, distribution and mobility of their people. Consequently, most Asian nations now acknowledge that conventional educational approaches cannot hope to cope alone with these challenges. This explains why Asia as a continent already has the largest number of students enrolled in distance education systems, why these systems are growing at a rapid rate and why new systems are being created in Asian countries that have been slower to recognise the tremendous potential of distance education.

2.2 National Profiles

Against this general background it is useful to examine the similarities and the differences of the individual national profiles of the five distance education institutions participating in this project so that it can be more easily appreciated why each has evolved or is evolving in different ways (as described in the case studies) in response to varying national circumstances. In particular, the four countries concerned, China, India, Indonesia and Thailand, can be compared for this purpose by examining them briefly in terms of relative size, their demographic features and their educational profiles.

In terms of size, of the four countries involved in the project, the People's Republic of China (from now on referred to as 'China') is by far the largest, being the third largest country in the world (after the Soviet Union and Canada) with its 9.6 million sq.km. representing about 6% of the Earth's surface and measuring over 5,000km north-south and east-west. In contrast, Thailand is only about one-twentieth the size of China. In between the two comes India, the seventh largest country in the world with an area of about 3.3 million sq.km. and measuring just over 3 000km north-south and just under that distance east-west. Indonesia, on the other hand covers a total area as large as China, but only 20% or just under 2 million sq.km. is land and this is made up of over 13,000 islands of which only about half are inhabited.

Two of the participating countries, China and India, have by far the largest populations in the world: China's is now over 1,100 million, it continues to grow (despite strong family planning stategies by the central government) and already constitutes 22% of the world's population; India's population of between 750 and 800 million represents about 16% of the world's population and grows at annual rate of 2.4% p.a. At this rate, India will also exceed one billion by the turn of the century and this number will be living in an area about one-third of that of China. The demographic picture of Indonesia has its own unique dimensions for its population of 165 million (the fifth largest in the world) is most unevenly distributed. Java, for example, which covers only 7% of Indonesia's total land area is home for 61% of the nation's citizens (this means about 100 million people occupy about 133,000 sq.km., the most densely populated place in the world) while Irian Jaya in the east which occupies about 22% of the total land area of Indonesia has only 0.7% of the population. China, India and Indonesia, and Thailand with a population of 52 million, all face the same problem of trying to reduce population growth rates which are running at around 2% p.a. or higher.

Providing educational opportunities in Asia generally, but in India and Indonesia in particular, is made more complex by the multi-lingual nature of their societies. Indonesia, for example, has Bahasa Indonesian as its official language but there are over 125 other recognised languages whilst in India, although about 40% speak Hindi, there are 15 recognised languages and 1,652 'mother tongues'.

2.3 Educational Challenges

Although educational profiles are difficult to compare usefully in precise terms because of the variations in scale and the different nature of the statistical data supplied by the case studies, it is clear from even a cursory analysis that there are huge and growing demands for education at all levels in all four countries and that meeting these demands would be challenging enough even if resources in material and human terms were readily available and virtually unlimited. That such resources are severely limited, especially as far as trained personnel are concerned, means that urgent solutions have to be found in the most cost-effective and efficient ways possible to extend educational opportunity on a massive scale. And that has to mean in a variety of ways other than the conventional.

Whilst it would seem that in all four countries tremendous strides have been made in the last three or four decades to improve access to all levels of education, many even at the primary school level are still denied access, choose not to attend classes or having attended, drop out in large numbers because of the low quality of teaching provided or for economic reasons. In Thailand, education for the first six years has been made compulsory and it was estimated in 1985 that about 96% of children between the ages of 7 to 12 years attended primary schools. About 35% of the 13–16 years age group attend lower levels of secondary schools and about 25% of the 16–18 years age group attend the upper levels. In Indonesia, it was estimated that 95% of children within the primary school age group attended school but this still saw almost 2 million of the age cohort, mainly from rural areas, denied access. About 85% of those that complete primary school gain access to secondary schools. In China, schooling is not compulsory but primary school enrolments have increased fivefold since 1946 to 128 million which represents about 95% of the age cohort concerned. About 50 million attend secondary schools and although that represents about 88% of the cohort proceeding to junior high schools, only about 8 million are to be found in the senior levels. In India, there is a huge unmet demand at all levels despite considerable progress in the provision of different types of institutions, volumes of enrolment and diversification of programs. It is estimated that approximately 95% of children in the 6–11 age group and 50% of the 11–14 age group are enrolled in schools at some time but this achievement in quantitative terms has to be measured against the disturbing statistics that indicate nearly 60% of children drop out of schools between classes I to IV and as many as 77% between classes I to VIII. Clearly there is a need to improve substantially the quality of the system of conventional schooling, a need that one of the project participants (CIET) is addressing.

The challenge of implementing national goals of universalisation of education at the primary school level in developing countries such as those represented by the participating institutions in this Study is enormous. To achieve this and to improve, or even maintain, standards while doing so has real implications for higher levels of education where the education and training of teaching professionals to staff the schools and colleges, as well as produce graduates for industry, commerce and public services, must take place. The brief analysis below of the situation regarding access to the tertiary sector of education in the four countries concerned shows how far short of meeting increasing demands for education and training at this level the current conventional university and college systems are falling, and indeed, how impossible it will be for governments to meet such demands from both school graduates and working adults solely through an expansion of the provision of more buildings and classrooms staffed by teachers continuing to teach, often ineffectively, in traditional ways.

Predictably, the proportion of students able to proceed from secondary to tertiary education, and particularly to conventional universities in these countries, is low. In Thailand in 1985, for example, conventional institutions of higher education comprising universities, teachers' colleges, technical colleges and other vocationally specialised institutions, could accept only 20,000 out of 300,000 high school graduate applicants, or 6% of the 19–24 year age group. In Indonesia, in the same year, state universities could enrol only 90,000 out of 600,000 high school graduates, a mere 15%. The participation rate in all forms of higher education of the 18–24 year age cohort in the population at large is still only about 5%. In India, the participation rate for higher education is similar. China has almost 2 million students in its 1,063 conventional institutions of higher education which have doubled in number within the last ten years and produced as many graduates in that time as during the three decades before, about 2.7 million. It is not known what ratio of high school graduates this might represent but if figures were available they would have to be interpreted carefully because of the existence of other non-conventional educational systems (as described in the case study) which provide other forms of access to post-secondary education. These include evening schools and correspondence divisions of conventional institutions, a system of higher education state examination for self-taught students and radio/television universities which began operations in the early 1960's, before the Cultural Revolution.

The provision of higher education outside the mainstream of conventional institutions in these countries is worthy of attention since the existence of innovative approaches to broadening educational opportunity does have a bearing on the way in which the development of each of the five institutions is perceived and accepted within its own country by the community at large. Much, of course, depends upon the success or otherwise of other similar innovative systems to meet their goals as to whether governments, professional peers, employers and students will be inclined to support or reject educational experiments as imaginative as a distance teaching university or school lessons by satellite. Just as the CRTVU in China had its precedents, so too has the Indira Gandhi National Open University in India had a precedent in the form of a state open university, the Andhra Pradesh Open University. Furthermore, the notion of distance education is a familiar one in the Indian higher education context as there have been 'institutes of correspondence courses' operating as part of conventional universities there for many years. Before the advent of Sukhothai Thammathirat Open University in Thailand or Universitas Terbuka in Indonesia, however, the concept of distance education as a viable and valid alternative means of educating people outside the conventional system was an unfamiliar one to the people of those countries. Being the first such institution in the field can be either an advantage or a disadvantage. So much depends on the quality of what has gone before and the expectations of those within and outside of the new systems.

2.4 Summary

In summary, then, the four national profiles reflect many attributes in common. These include:

- large and rapidly growing populations which are still mainly rurally based (from 70%–85%) despite recent trends towards greater urbanisation;
- diversity of languages and religions;
- a huge unmet demand for education at all levels but especially for higher education;
- the incapacity of conventional educational systems to provide access for all, or to provide a quality education to those who have access, mainly as a result of insufficient qualified teaching personnel as well as outdated curricula and methods; and
- an inequitable representation of poorer classes, especially from rural areas.

In consequence, they all have found the need to invest in unconventional approaches to meet the enormous challenges which must be addressed: distance education systems which make, or are being planned to make, large-scale use of a range of communications technologies for the delivery of specially designed multi-media learning materials.

In developing such systems, however, they also seem to share similar inhibiting factors that are so common to distance education systems the world over, and especially in developing countries. These include:

- inadequate, or at least, varying financial resources from national governments that are inclined to destabilise both planning and operational stages at critical phases of development;
- inadequate or unreliable communications systems;
- limited access for the population at large to electrical and electronic communications technologies on which such large-scale systems may wish to depend;
- lack of qualified teaching media production and administrative personnel;
- instinctive resistance of many, if not most, conventional teachers and educational administrators to the unfamiliar philosophies and practices inherent in distance education.

With similar challenges and obstacles to contend with, it would be reasonable to assume that the distance education models that have evolved and are still evolving in response to them follow similar patterns. To some extent they do in as much they are:

a) national systems;

b) they have had to contend with rapid growth in enrolments and programmes from the start, generally after an intense and all too short a planning period;

c) they have to depend quite heavily on staff from other institutions on a part-time basis which create management problems in reconciling professional and personal priorities, monitoring performance and co-ordinating the activities of a diverse and disparate work-force with varying degrees of commitment to the central mission of the institution;

d) they must cope with the unfamiliar notions of course design and development through teams of academics and other professionals with specialist skills and accept a form of division of labour that usually separates the centralised course design and production process from a localised or decentralised teaching process; and

e) the use of a range of media calls for a variety of production and distribution systems.

But because each has had to evolve within unique national contexts, each with its own objectives and philosophies, cultural traditions, geographical and demographic challenges, political priorities and existing educational infrastructure, there are as many differences as similarities when the details of organisational structures and of the dynamics of the systems are more closely examined, as they are in the next chapter.

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CHAPTER 3: THE RESPONSES: FIVE MODELS OF DISTANCE EDUCATION

THE FIRST PHASE: DESIGN AND DEVELOPMENT

3.1 Institutional Objectives

Of the five institutions involved in the project, the Central Institute of Educational Technology (CIET) has to be considered somewhat separately from the others in a number of respects since it is the only one that has been set up to cater exclusively for school-age children and uses essentially a single medium (television), while the others represent variations on the theme of offering higher education and tertiary level training to high school graduates and adult students in a multi-media distance education mode.

The CIET was established (as has been mentioned already) in the context of a school system unable to keep pace with the increasing demands of a rapidly growing population and faced with a problem of huge withdrawals from the system as a result of the inadequacies of curricula, facilities and teaching standards. Accordingly, the general mission of the Institute is "to promote the use of educational technology, particularly mass media, for the spread and improvement of the quality of school education". More specifically, it is attempting to meet the need for changes in curriculum content and the processes of learning, to move away from traditions of rote learning to encourage a spirit of enquiry and inject some joy into the learning process.

The four universities, on the other hand, share much in common with one another in terms of objectives because they all are attempting to respond to national social and economic needs that call for the provision of higher education to a much greater proportion of their respective populations, including not only those high school graduates that are unable to gain entry to conventional universities and colleges but also working adults who cannot attend classes at local universities and disadvantaged groups such as those living in rural areas remote from tertiary institutions.

In China, for example, 'socialist construction' following the ten years of social upheaval caused by the Cultural Revolution is relying heavily upon education to improve the quality of the nation through extensive programmes designed to teach new skills and upgrade the old, on a scale that has never been attempted by any nation before. To this end, the Central Radio and TV University is playing a key role, using as it does, mass media methods of course delivery supported by a decentralised regional system of teaching through Provincial TVU's, branch schools and work stations.

Indonesia, faced with the failure of the conventional system of state and private universities to increase participation rates of high school graduates in tertiary education to an acceptable level and in urgent need to meet the demand for more skilled workers (30% of the workforce has not progressed beyond a primary school education), responded in 1983 by establishing a national open university, Universitas Terbuka (meaning in Indonesian simply 'Open University'). In contrast, Thailand's open university, Sukhothai Thammathirat Open University (STOU), was established in 1980 essentially to provide higher education to enable employed adults in Bangkok and other cities "to learn while they earn" and to give educational opportunities to rural dwellers. So too, India's first national open university, Indira Gandhi National Open University (IGNOU), sees its responsibilities in broad terms, "to provide educational opportunities to those sections of the society who have been unable to make use of the conventional system". In practice, this means "disadvantaged groups such as those living in remote and rural areas including working people, housewives and other adults who wish to upgrade or acquire knowledge through studies in various fields".

3.2 Planning the Systems

A report such as this is not the place to attempt to tell the story in detail of how each of the five systems was planned and subsequently developed, but it is worth drawing attention briefly to the very different circumstances that marked the creation of these systems in their respective countries.

In some cases, the creation of these systems might be seen to be 'evolutionary' in that they have been logical developments emerging from previous experience with educational experiments of a similar kind. In others, their establishment has been almost 'revolutionary', being considered by some to be desperate measures taken in desperate circumstances, with no relevant, successful precedents available within the nation to build upon and very little time allotted to become familiar with other models operating elsewhere before having to 'open doors' to a large intake of students at a time decreed by political rather than educational and logistical considerations.

India's CIET, for example, a unit of the National Council of Educational Technology (NCERT) which was created by Parliament in 1962 to upgrade the quality of school education in the country, was set up in 1984 by the merger of two NCERT departments, the Centre for Educational Technology and the Department of Teaching Aids. Furthermore, a school television service had been operating since 1961 and satellite instructional television operated in 1975–6 with the SITE project providing enrichment programmes to remote rural areas. Planning for India's own satellite for educational purposes (INSAT) began in 1980, first programmes were broadcast in two states in 1982 and were gradually extended to four other states by 1984 when CIET was created to co-ordinate the project. So the system has grown gradually as lessons were learned from previous experience.

At the other extreme, Indonesia's Universitas Terbuka project was far from evolutionary. Although educational radio broadcasts had been used for inservice training of teachers in the 1970's, there were no national precedents to work on when the Minister of Education and Culture in October 1983 gave a Planning Committee just nine months "to prepare and plan all teaching-learning activities through a distance-learning system in a higher education institution". The first students were accepted in June 1984, over 60,000 of them, more than twice the target figure that the Planning Committee had recommended, but less than 25% of the 270,000 applications received. After four or five years of operation, the University continues to grapple with many problems, some of which at least might have been avoided had time and resources been more generously allocated in the planning stages.

The creation of China's CCRTVU could be seen to have parallels with the evolution of India's CIET in that China was one of the first countries to use radio and television for higher education purposes by creating television universities in the early 1960's. Following the Cultural Revolution of 1966-76, the central government agreed on the creation of a national radio and television university in 1978 and a year later the CRTVU system was launched, eventually involving a network of 43 provincial television universities (PTVU's).

Thailand's STOU was created by the signing of an Act by the King in September 1978 but this was followed by a planning period of two years before the first students were accepted in December 1980. Although planning for an initial intake of about 25,000 students, the University found itself accepting over 80,000 after receiving an overwhelming response to its programmes presented in a multi-media distance education mode. This was in complete contrast to Thailand's only other 'open university', Ramkamhaeng University, which though 'open' as far as having no limits to the number of students admitted, offers only traditional lecture programmes to those that choose to attend classes (many of which exceed the capacity of the lecture theatres to accommodate them) at the University in Bangkok.

In India, the concept of a national open university along lines of the U.K. Open University was first mooted in the early 1970's but it was 1983 before the Ministry of Education began to promote the idea seriously, no doubt prompted by the existence of a State open university in Andhra Pradesh. The planning report which was compiled during 1984 certainly gave impetus to the formation of a national institution, for an announcement by the Prime Minister establishing IGNOU in January 1985 was followed by the relevant Act of Parliament in August of the same year and the beginning of the University's operations a month later. Unlike Universitas Terbuka and STOU, however, the initial intake of students was only 4,500 and these were at the graduate diploma level, so that the strains on the system in the earliest days, though challenging enough no doubt, were much less serious than they would have been had the rather short planning period allowed required a massive intake from the start.

3.3 Beginnings

3.3.1 Physical Facilities

Even if institutions such as those described in this report were to enjoy the rare luxury of an extended planning phase, it is almost certain that as distance education institutions they begin life in premises that are not purpose-built but probably cramped, dysfunctional, dispersed about the city and rented on a temporary basis until a permanent site is purchased and buildings constructed more slowly than the circumstances demand. This was the case for STOU which moved to its present site after four years of operating in rented offices in Bangkok (but now has a campus and facilities that are second to none), for U.T. which began to move some of its functions to its own premises after two years or more, and for IGNOU which after two and a half years of operation, now owns a twelve hectare site on the outskirts of Delhi but might have to occupy temporary buildings on that site before moving into permanent buildings at a later date because of financial and time constraints. CRTVU in Beijing continues to wait for a building of its own after ten years and still has to cope with trying to co-ordinate the activities of its central organisation (apart from the national decentralised system as well) which is housed in several buildings scattered around a huge and populous city of 10 million in which travel from one quarter to another is extremely slow, whether by car or bicycle!

Such realities are seldom taken into account when the achievements of embryonic, or even mature, distance education systems are being assessed. All too often, these are judged as if the institution of some years standing began its operations in the physical and professional environment that exists when the assessment is made. The miracle is, for many distance education institutions, that they survive the trauma of their birth; a further miracle is that having done that, most manage to make such positive contributions to their national educational systems.

3.3.2 Initial Operations: enrolments and programmes

The initial scale of operations of the systems concerned in the report may bear little relation to the ultimate target enrolment figures envisaged by politicians, planners or institutional leaders, but they are important in understanding how and why one system develops so differently from another and why it is so difficult, if not futile, to attempt to make meaningful comparisons (whether it be in terms of providing access, a quality educational experience or being cost-effective) among institutions which are at various stages of development as represented by these five systems, two of which have been operating for approximately ten years (CRTVU and STOU), two for four years (CIET and UT) and one (IGNOU) for only three years.

IGNOU, for example, began with 4,500 students in a Diploma in Management and a Diploma in Distance Education; UT's initial enrolments were 60,000 in three major programmes involving 12 different course units; STOU began with 80,000 students in two programmes offering a total of 21 course units in the first two semesters; while the CRTVU network attracted 280,000 students when it offered its initial programmes in

1979. Again, CIET cannot be compared in the same way but some insight into the scope of its operations can be given by indicating that its first programmes were offered by satellite through six states following the provision of 4,000 television sets for use in classrooms where audiences averaged about 110 children per set. This meant that there was a potential formal viewing audience of almost half a million children in the age range 5–11 and that at least 4,000 teachers were being involved in the experiment.

3.3.3 Organisational Structures

Participating institutions or systems in this project, and indeed large-scale distance teaching universities (referred to henceforth more briefly as DTU's) generally, vary in the degree to which their functions are carried out by the central authority or delegated to more peripheral local centres. What is common to most, however, is the decentralisation of the academic process whereby course design and development is centralised but the teaching of students (either through tutorials and other personal contact programmes or the marking of assignments) is delegated to part-time staff in other institutions. This decentralisation in itself generally calls for incorporation of academic and administrative mechanisms to be put into place as part of the centralised system to monitor how the teaching processes are being managed in the regions. Apart from this, however, the central organisation has to be so structured that it can deal effectively with a wide range of functions. These may vary in detail from one system to another but in broad terms all distance education systems must find a place for at least the following activities:

a) Academic affairs, including the development of programmes, course development, student assessment and examination, the form of provision of student academic and counselling services in local centres or regions, monitoring of standards and so on;
b) Production and distribution of learning materials;
c) Media services and educational technology;
d) Registration and student records/documentation;
e) Planning, research and development;
f) Information services, publicity and public relations;
g) Administrative affairs such as finance, personnel, facilities, buildings and grounds.

The central organisational structures of STOU and IGNOU, like many other DTU's are essentially similar to those that can be found in conventional universities. Both have as their ultimate executive authorities in the decision-making processes a University Council or Board of Management with a Rector or Vice-Chancellor as the institution's Chief Executive Officer. Immediately below this Council is a body of senior academics with responsibility for academic matters associated with activities related to academic standards, teaching, student assessment and research. In STOU, it is called the Academic Senate, in IGNOU it bears the name of Academic Council, but the functions are more or less the same. In IGNOU, however, responsibility for the broad design and formulation of academic programmes lies with a separate Planning Board.

Both institutions also resemble conventional university organisation in that they have several senior academic administrators to assist the Chief Executive officer and be directly responsible for the management and co-ordination of specific areas. In this context, however, because of the large scale involved and the additional complexity of management and administration of DTU's, the number of such assistants required is likely to be greater than one would expect to find in a conventional university. STOU, for instance, has seven Vice-Rectors (with Assistant Rectors) responsible for such matters as Academic Affairs, Planning, Administrative Affairs, Operations, Development, Special Projects and Servicing and there are a similar number of Offices each under the supervision of a Director to provide the administrative support to these various areas. IGNOU similarly has several Pro-Vice-Chancellors to assist the Vice-Chancellor as he deems appropriate and the administrative functions are managed by Divisions headed by a Director or Registrar. These 'Divisions' cover roughly the same broad areas as do the 'Offices' of STOU but they are divided differently according to such functions as Planning and Development, Administration, Finance and Accounts, Estate Management, Recognition and Co-ordination, Material Production and Distribution, Regional Services, Library and Documentation, Admission and Evaluation, Computer, Communication and Distance Education. Both universities also have the academic community divided into 'schools' rather than 'departments' to facilitate interdisciplinary course developments.

The organisational structure of Universitas Terbuka as described in the case study differs considerably from the above structures. There is a Rector as Chief Executive Officer but there is no mention of an executive University Council or Academic Senate or Board to whom he is responsible. To quote the case study, "The highest level of management at UT is held by a Rector who is assisted by 3 Assistant Rectors...", one responsible for the teaching and learning programmes research and community service, one for general administration, finance and personnel and one for student affairs. The management in detail within these three broad areas of responsibility rests respectively with the Faculties, the General Administration Bureau and the Academic Administration and Student Affairs Bureau, each having its particular functions undertaken by 'Divisions', much like the Offices of STOU or the Divisions of IGNOU. With such a structure, the actual dynamics of the decision-making processes and the management styles of the four senior academic administrators would be critical for the development of close cohesion and understanding between the academic activities within the faculties, on the one hand, and the administrative support functions as represented by the two bureaux, on the other.

The highly decentralised system of China's CRTVU is a reflection of a number of factors, not the least of which has been an urgent need since the Cultural Revolution to bring higher education and new technical and professional skills to the population at large throughout provincial cities and towns, and ultimately to the more remote rural areas. The system that has emerged following the establishment of the Central RTVU in Beijing in February 1978 now represents a national network in every sense of the phrase, depending as it does on the co-operation of over 40 provincial radio and television universities (PTVU's), over 1,200 prefectural/civic branch schools, about 3,000 district/county work stations and more than 20,000 TV classes. As it can be seen from this, the RTVU system which CRTVU in Beijing is responsible to the State Education Commission for co-ordinating, is organised on five levels, but unlike most other national educational systems, these levels relate closely to the hierarchical political structure of the country where government is national, provincial, prefectural or civic, district or county and, finally, local. Balancing responsibility and authority between the centre and the regions so that local institutional autonomy can be preserved and flexibility can flourish without the central co-ordinating body losing control and direction over such a vast system must surely be one of the most delicate management exercises ever required of an educational enterprise.

Whilst the structure of the CRTVU system may vary substantially from those already described, the division of responsibilities between the central organisations and their regional networks are virtually the same for all: that is, curriculum design and course development, the production and distribution of learning materials, the making of broadcast programmes and the final examination of students are generally found to be central functions, while the teaching of students, continuous assessment techniques and the provision of academic and social support services are regional responsibilities. So it is almost expected that one should find CRTVU's Dean of Studies in charge of three major divisions entitled 'Teaching Plan Division', 'Teaching Material Division' and 'Examination Division'. The administrative functions under the supervision of two Vice-Presidents are not unlike those already described in the other three open universities.

What does seem to vary quite significantly, however, among the four systems concerned is the extent to which the central component of the network of co-operating institutions establishes and maintains detailed student records, monitors student progress and keeps accurate statistics of student performance on which evaluative studies and research activity can be based. Sometimes factors such as scale or rate of growth may influence the final allocation of responsibility for such functions as is the case in China where monitoring student progress and keeping records is essentially the responsibility of the provincial RTVU's. Where the scale is a little more manageable, even as large as 150,000 active enrolments in the case of STOU, the central institutions generally accept this responsibility, which they must if their research and development programmes are to have any chance of providing meaningful and systematic evaluation of the total educational outcomes.

3.3.4 Staffing the Structures

With the exception of CIET which represents a centralised ETV operation consisting of about 120 full-time staff members in eight divisions associated with the production of such programmes (e.g. script, production, distance education, research and evaluation, printing, radio, information, planning and administration), all four decentralised structures mentioned above depend to a large degree upon the recruitment of part-time staff. In fact, all of them employ more part-time staff than full-time, and this is virtually standard practice for large-scale distance teaching systems where not only are the teaching and assessment of students left essentially to part-time regional staff but many (sometimes nearly all) of the academic staff involved in course writing are hired on a casual basis for specific course development projects while they are employed on a permanent and full-time basis by other institutions. As the systems expand and economies of scale begin to take effect, the proportion of full-time staff required in course development and central administrative processes compared to that required for more linearly related functions of tutoring, assessing and counselling students can be expected to diminish further.

There is no 'right' or 'optimal' proportion that a DTU can aim at since so much depends upon the model that has been created, the educational philosophy underlying perceptions as to the nature and extent of support that students should receive and the ability to recruit staff of high quality on a full-time/permanent basis when required, to mention just three variables. After ten years, for example, STOU with a student enrolment of 150,000 has about 1,600 full-time staff (of which 339 are academic) and already there are 3,000 part-time staff employed, even though the marking of assignments on a large-scale has not yet begun. IGNOU, which after three years has recently witnessed a rapid increase to over 30,000 students, has about 600 full-time staff and over 5,000 part-time staff, over 4,000 of whom are 'academic counsellors' in study centres. UT, in comparison, began in 1984 with only 80 full-time personnel but had to cope with an initial intake of 60,000 students. By the end of 1987, however, this had grown to 660. The regional staff grew in the same period from 120 to 1,200 but as the case study points out, only 20% of all UT staff have educational attainments beyond high school level. Compared to these about 1,300 full-time staff, there are now about 3,500 part-time staff, most of whom are employed for tutoring and writing modules and test items. Incidentally, this growth in staff numbers has not been matched by enrolments which now total only 70,000 active students following a sudden downturn in the intakes of recent years, especially since 1986. Finally, CRTVU provides yet a further contrast. It has a different staff profile because a large proportion of its tutorial staff in the regions are employed full-time teaching in a classroom situation as shall be seen in more detail in the next section of this report. Of the 25,000 tutors engaged in the system to teach and mark assignments, for example, about 11,000 or 44% are full-time staff of the University system. Theoretically at least, this should facilitate the twin tasks facing all decentralised large-scale systems of staff supervision and staff training and development, whilst at the same time more effectively being able to monitor the progress and performance of large numbers of students studying at a distance from the central institution.

THE SECOND PHASE: OPERATIONS

3.4 Educational Processes

The complexities of organising a distance education system on a large scale can be broken down into two main operating sub-systems:

a) *Course Development*, involving curriculum design of broad programmes and their constituent course units, determining teaching methods and media to be used, writing and producing courses to be delivered through those media, providing supplementary reading material, study guides and other forms of support to learning, and determining methods of student assessment.

b) *Student Support*, involving both academic support services (concerned with tutoring and counselling, regular forms of interactive learning between students and staff or among students formally or informally) and administrative support that can respond effectively to student needs of an organisational kind, (matters such as admission and enrolment, information on how the total system works, how to seek help at various levels, what the costs will be and what form certification will take).

As mentioned previously, the course sub-system is likely to be found mainly, if not exclusively, operating at the centre of the system, while the support sub-system will be essentially a regional one, co-ordinated and monitored by centrally-located staff. The degree to which such co-ordination is effective has important implications for the system as a whole for without it the service and support given to students may fall far short of what is required to retain students and contribute to their successful achievement.

3.4.1 Course Development

All five distance education models in this project develop their learning materials through course teams but the size and composition of these teams, as well as the manner in which they operate, vary considerably from one to another as might be expected, bearing in mind the different contexts in which they have to function and the time frames in which the materials have to be produced.

In the CRTVU system, the major courses are produced by CRTVU itself while the development of minor courses is generally left to the staff of the PTVU's. The syllabus is set by the State Educational Commission but the course teams are made up of TVU personnel, studio staff and academics from the conventional mainstream universities and institutes. These course teams operate under the guidance of an advisory panel of five to seven academics selected from conventional universities and from within the TVU network itself. In the case of print materials, national scholars are selected to be 'chief writers' of teams of writers responsible for the production of course books, reference books and study guides, all of which are subject to the scrutiny of external academic assessors from other universities before publication.

Although the production of ETV courses at India's CIET is an 'in-house' activity, curriculum or programme development has been undertaken through a series of national conferences or workshops where groups of educators, psychologists, educational technologists, broadcasters, other media experts and researchers suggest themes and topics for consideration by specialist CIET committees which determine the final annual ETV program to be jointly carried out by CIET and the state-based SIET's. There are seven production teams in the CIET, each comprised of a producer, an assistant producer, a script writer and a researcher, sometimes with an outside subject matter specialist added.

The three open universities (STOU, IGNOU and UT) have all adopted similar theoretical approaches to the use of course teams for the design and development of distance learning materials although there are undoubtedly variations in the degree to which the theoretical models actually work in practice. Generally speaking, course teams at these three institutions draw on their own full-time staff for curriculum development, instructional design (setting the distance education principles and guidelines), media production and other technical support (e.g. language and content editing, graphics, computer-aided learning) while recruiting on a contractual basis subject matter specialists and external assessors from other universities and higher education institutions. Although the specific functions of course teams will differ from one institution to another, functions likely to be the subject of discussion by such teams are setting objectives for a course, dividing the course content into modules or units, determining sequence, assigning writers and co-writers to their respective units, arranging an overall teaching plan that will include choices of media other than printed materials, the possible use of tutorials and other personal contact experiences, assessment and examination requirements.

The heavy dependence on academic staff from outside the system to write distance learning materials, though having a positive outcome of being able to point to the involvement of the nation's most respected scholars and experts in the field, generally presents the institution concerned with difficult management problems. Strategies must be devised for 'teaching teachers how to teach' in the distance education mode, assisting them to learn to work as a member of a multi-faceted team and for meeting unfamiliar production deadlines that are part of 'a critical path'. Each of the universities has attempted to meet these challenges.

UT inducts outside subject matter experts into the demands of 'module writing' by holding workshops where 'instructional objectives' of the modules concerned are explained to them and relevant course outlines, as well as assessment exercises and examination models, are developed. The actual drafting of the content in detail is done elsewhere and submitted for approval to a UT instructional designer. STOU also organises workshops for course authors from outside before they start writing course materials for which objectives have been predetermined by the course team. Once the process of writing begins, lesson plans for each unit in which the writer is involved have to be submitted for approval by the course team. This will also involve outlining the content of material required for audio and video cassette or broadcast material so that the technical aspects can be planned. At IGNOU, too, steps are taken to ensure that course writers are aware of the parameters within which modules must be produced, including a standardised format that has been developed in the 'self-instructional' mode, the division of units, instructional objectives for each unit, examples of self-check exercises and summaries that should be incorporated in the text and the tone and level of language that should be used to ensure that the material is readable and comprehensible. In cases where this fails to produce learning materials of the expected quality, they may be re-drafted by the original author but failing this, by IGNOU faculty members from within a School or the Division of Distance Education.

Course development through such a complex and demanding set of procedures, that first became identified with the U.K. Open University during the 1970's, has almost without exception been adopted by the large-scale DTU's that have developed since but it is probably reasonable to suggest that few, if any, have been able to adhere to their original theoretical blueprints for very long before having to make significant modifications to speed up production and meet critical deadlines for the sake of providing more reliable service to students. In many cases, course teams diminish in size or begin to meet on a less regular basis, sometimes in small groups rather than in whole team situations. Sometimes they do not meet formally at all but members of a team might interact with one another only when collaboration is unavoidable. It is not just a matter of getting the human dynamics of such a co-operative enterprise right; it may simply be a matter of work overload, with too much needed too soon too often by too many. Here leadership and good management at different organisational levels is needed if theory is to be translated into practice so that high quality materials can be produced regularly on time.

3.4.2 Methods and Media

Distance teaching universities, taken as a whole, whether they be operating in developed or developing countries, often surprise or sometimes disappoint their visitors who come expecting large-scale use of educational broadcasting by radio and television as the main thrust of the teaching strategy only to find that the less exciting and certainly less innovative medium of the printed word constitutes the core material of the distance learning packages. So it should perhaps come as no surprise to learn that three out of four of the university enterprises represented in the report (STOU, UT and IGNOU) use radio and television either sparsely or not at all and place by far the greatest emphasis on attempting to develop quality print materials through the course team procedures already described.

CRTVU, on the other hand, uses radio and television broadcasting as the main teaching media, occasionally producing programmes on video and audio cassettes to provide easier student access or ease pressures on transmission times. (The broadcast programmes are, however, being supplemented increasingly by printed course materials.) Although CIET differs from CRTVU in that it depends exclusively on the one medium for the delivery of all its programmes, namely, television by satellite transmission, an interesting comparison can be drawn between the two systems with regard to the manner in which the broadcasts are received which in itself partly explains the adoption of broadcast teaching methods.

For the most part, the programmes are received in classroom situations: in China the learners are mostly working adults who are selected by their work units for full-time study in groups under the supervision of full-time tutors and class managers; in India, the learners are primary school children sitting in classrooms under the guidance of their teachers, many of whom are specially trained in the use of receiving television programmes as a teaching medium. So in both cases, some of the most inhibiting factors in the use of educational broadcasting can be overcome: firstly, broadcast schedules which are generally unsuitable for part-time working adults cause no inconvenience to groups able to receive programmes during normal business hours (off-peak transmission times); secondly, the disadvantages of one-way broadcasting are minimised by the presence of a teacher or tutor to stimulate interaction and seek feedback; and thirdly, the necessary hardware can be provided by government agencies where there might otherwise be a problem of access.

All three reasons, apart from the other obvious ones of high costs, lengthy production schedules and scarcity of qualified media staff, almost certainly contribute to the reluctance of many large-scale systems to commit themselves to investing heavily in broadcasting. And perhaps the experience of so many other systems committed to this strategy continues to remind us that unless students are organised in a disciplined way in groups at set times (as in done in CRTVU and CIET) to listen to or view broadcasts, then students are likely to avoid most of the programmes anyhow, preferring to read the printed materials and books where and when it suits *them* to do so rather than when the institution decrees that they should. In other words, flexibility and user-friendliness, play a significant role in determining student learning strategies.

The heavy reliance on print in the so-called 'multi-media mix' of the three open universities is unequivocal. At UT, printed material represents 96% of the total course material that a student receives. It is supplemented by material on audio cassette (2%), television (0.5%), radio (0.5%), face-to-face tutorial (0.5%) and satellite education systems (0.5%).

IGNOU is still developing a teaching strategy but the core of the learning package is self-instructional print material supplemented by audio and video cassettes to be listened to or viewed in study centres. For a block of three units (about 15,000 words), it is standard procedure to have one 20-minute video programmes and two 15-minute audio programmes. If students avail themselves of all the audio-visual cassette material supplied for a course, they will spend about 20% of study time on it compared to 80% on printed material. The reality is that considerably less than 20% of study time is likely to be spent by students on this alternative material, especially if it is only available to them in study centres to which access could be a problem or where facilities might be overstressed.

STOU can claim to have a multi-media approach to distance education to the extent that its core materials of printed programmed texts and University texts are supported by a range of other materials and programmes which may include television and radio broadcasts, audio and video cassettes, films and home experiment kits. The extent to which each of the media is used depends upon the nature of the course, enrolment numbers and their distribution, costs and other factors such as the availability of air time for broadcasting. About 150 radio programmes per week are broadcast or 7,800 per year. When radio is used in a course, approximately 15–17 programmes of 20 minutes each are produced but these are transmitted from 9.00 a.m. to 4.30 p.m. each day when few working students can take advantage of them. The use of television has been even more limited (one thirty minute programme per course) because the Government allows only three one-half hour programmes a day to be broadcast and those are between the hours of 6.00–7.30 p.m. when many students are travelling home from work and cannot view them regularly. It is estimated that only about 10% of students view STOU television programmes and/or listen to its radio programmes. An extension of the use of television is now possible through the use of an additional channel but only a limited number of courses of general community interest will be eligible for broadcasting and then mostly early in the mornings or late at night. Even with additional expansion of broadcast facilities and continued improvement in student access to such programmes, it is difficult to see either radio or television constituting a major component of the student's distance learning 'package' in the future.

3.4.3 Student Support

The success of a distance education system depends not only upon the quality of the learning materials or programmes produced but also upon the quality and scope of the academic and administrative support that is given to students as they attempt to cope with the demands of learning at a distance. Whilst distance learning, by definition, implies a heavy emphasis on independent forms of study or 'self-instruction', effective systems recognise the need to provide some forms of interaction as well. Getting the 'right' mixture of independence and interaction for the student and the institution or system is a critical task. There is no 'right' mix in absolute terms, of course, but a system which leaves students completely to their own devices after receiving the learning package or broadcast schedule cannot hope to be taken seriously as distance educators since the term 'education' itself implies a two-way communication process between teacher and student. And while distance learning materials can be designed to encourage interactive responses from the student, the human reality is that most of us need the stimulation of others (sometimes teachers, sometimes other learners, or both) to persist with the demands of study and perform at our best.

For educational, psychological and social reasons, the provision of a range of student support services is regarded as essential by most distance teaching universities. The questions that remain to be asked, therefore, are not should such services be provided, but what are most appropriate for a particular context and how much is enough, since resources are never infinite and the costs of student services tend to rise in proportion to enrolments. Each of the four universities of concern to this report continue to seek answers to these two questions in their various ways for there are no definitive 'best' answers. Furthermore, no sensitive and caring distance education system should ever feel permanently comfortable with the answers that they provide, for there is virtually no limit to either the range or quality of support services that can be provided in human or technological terms, especially in these dynamic times.

By and large, all five systems acknowledge the desirability of including wherever and whenever possible an element of interpersonal contact within the overall learning experience. In the case of ETV programmes of CIET, for example, and the regular TV-viewing classes of the PTVU's in China, the classroom situations provide the necessary elements for interaction, that is, a teacher or tutor and other students. How much interaction takes place and what the quality of that interaction might be will of course vary considerably from one situation to another but the opportunities are provided and that is always the first step in the support process.

In the case of the CRTVU system, the tutor-supported television class is not the only decentralised teaching process. Practical work associated particularly with science and engineering courses has to be done under supervision, either in conventional university laboratories or, more recently in TV university laboratories and study centres. For the most remote students, science home experiment kits have also been introduced.

Since STOU has been operating for at least ten years, it has had time to develop an extensive and comprehensive student support structure. This is reflected mainly in its regional network which includes a decentralised tutorial and counselling provision, local facilities for practical work or on-the-job training, residential and other personal contact programmes, fieldwork activities, decentralised examination arrangements, student self-help groups or 'clubs and visits by STOU academic staff. To this end, the University had created a national network of centres through co-operation with other educational institutions and government agencies. Altogether, there are 183 centres of different kinds: 12 regional study centres, 66 local study centres, seven agricultural extension centres, 22 health science centres, 75 STOU 'library corners', and one area resource centre with ten more being planned. The structure for an interactive 'community of scholars' is in place; the extent to which it is meeting, or will meet, the needs of individual students will essentially depend upon the quality and the commitment of the personnel involved in the teaching, counselling and general organisational support processes, together with systematic evaluation and improvement of the services offered. Most importantly, getting students to take advantage of services offered is sometimes the greatest challenge of all.

Universitas Terbuka has established a network of 32 regional units across Indonesia but these are essentially administrative units more competent to deal with such matters as registration, examination and distribution of learning materials than to offer tutoring or academic counselling services. There are no study centres as such where students might have tutorials or receive institutional assistance with study problems although students may organise informal study groups and pay tutors to assist them. While students are not discouraged from contacting staff at the regional units or at UT itself if they need assistance, personal contact with UT central or regional staff is certainly not systematic and must be seriously considered a factor contributing towards low retention and completion rates.

Like these other national open universities, IGNOU has also established a regional network of centres throughout the country with the co-operation of colleges and other educational institutions which provide the necessary space for the learning activities concerned. These include tutorials and counselling, reference libraries, audio and video material and general information services. At this early stage of development there are already 120 study centres which are administered by 12 regional centres. Unlike UT, tutorial and counselling sessions are programmed and regional centre staff are expected to monitor study centre effectiveness. Statistics are not available as yet to indicate how well attended such centres are or how effective they are proving to be for those that use them. Naturally attendance at centres is voluntary but when science courses are introduced it is planned to require attendance at certain centres for the completion of compulsory practical laboratory experiments. It will be interesting to have further insights into the dynamics of the network in due course.

3.4.4 Student Assessment

Student assessment can take essentially two forms. It can be ongoing (i.e. 'formative') or in retrospect (i.e. 'summative'). More commonly, the former approach is likely to be called 'continuous assessment' and takes the form of regularly submitted assignments of various kinds while the retrospective form of assessment (at the end of a term, semester or academic year) is usually referred to as an 'examination'. Determining the assessment strategy for large-scale distance education systems, particularly those that aspire to university status and all that it implies in terms of intellectual rigour, integrity and objectivity, is clearly a critical task for senior planners and managers of such systems, for one of the very telling factors in gaining acceptability for an institution's awards is the demonstrable quality of the assessment procedures as based on assignments and examinations.

Assessment can, of course, be confined to one form or the other, or embrace both. At one extreme, students can simply be 'examined' at the end of a course, having completed no assignments for academic staff to assess or comment upon as part of the distance teaching process during the course, nor being paced in any way by submission deadlines. At the other extreme, the system can be quite rigidly paced with regular compulsory assignments contributing totally (100%) to a final assessment. In between these two positions, students might be required to complete regular assignments and a final examination, each contributing to the final assessment, perhaps 50–50%, 60–40% or some other combination. Obviously, if no assignments are required to be submitted for marking during a course, then not only must assessment take the form of a terminal examination but an important element in developing an interactive teaching process is also lost. On the other hand, a policy decision to require the submission of assignments (whether they be tutor-marked or computer-marked or both) on a large-scale has significant cost and management implications that in some cases override educational considerations even when a high price of another kind might have to be paid in the longer term for the omission.

It would seem that our four university systems have adopted different positions regarding the role of assignments for teaching and assessment purposes. CIET can be disregarded in this context since its ETV programmes are for curriculum enrichment only and not part of the grading process.

By far the most paced system in terms of the regularity of assignments required as an integral part of the teaching-learning process is the CRTVU system of China, which operates essentially as a vast national decentralised classroom, since the vast majority of its students are adult workers who are released from their normal work functions by their work stations to study full-time, a proportion of which is spent each week in viewing television presentations in groups under the supervision of a tutor who is also responsible for correcting assignments. There is also a class manager at the work stations to direct self-study. It is usual for students to have approximately two hours daily allotted for the completion of assignment work. The main assessment, however, is by formal examination held at the end of each semester, the examination papers and the marking systems being designed by CRTVU in Beijing but the conduct of the examinations and the marking of papers being delegated to the PTVU's. Penalties for failure are severe in that a full-time student who fails to meet progress requirements must return to their work units and at best be allowed to study as a 'spare-time' student in a single course.

It does appear even at this early stage that of the four university systems described in this report, IGNOU is developing a much more paced system in terms of teaching strategies (including student assessment) than either UT or STOU. At IGNOU, course assignments are compulsory and count for about 25%–30% of the total assessment with written examinations at the end of semesters accounting for the remaining 70%–75%. Monitoring of the marking of assignments and examinations which are designed by the full-time academic staff at IGNOU headquarters is being undertaken by the central Regional Services Division. Again in contrast to UT and STOU which use only multiple choice computer-marked examinations, IGNOU examinations mostly require answers in essay form, some short essays, others longer. It will be interesting to see if this more structured and supportive approach of IGNOU is ultimately reflected in a better retention rate of its students than currently being experienced in the unpaced Indonesian and Thai systems.

UT and STOU rather surprisingly do not require students to submit regular assignments. Those that are required are not due for completion until late in the academic year or just prior to graduation so that they do not provide feedback or direction to the student during the presentation of a course or provide much in the way of preparation for final assessment by examination. Students at UT are technically meant to complete a take home examination paper just prior to the final examination but this procedure has apparently left much to be desired in terms of its contribution to the total assessment strategy. So apparently has the final examination itself which is failing to discriminate reliably between those students who have actually studied the learning materials and those who are simply engaged in a guessing game, having chosen either not to buy the materials (their purchase is not mandatory), or if they do have them, unwilling or unable to make use of them in the unfamiliar distance learning mode.

STOU does set practical assignments or requires field work for some of its specialist professional courses such as teaching, media production, health sciences and agricultural extension. All students complete intensive workshop programmes for 'professional experience' just before they complete their degree programmes and these may be counted towards their final assessment. But overall, the system is unpaced and unsupportive for most of the time that students are enrolled. Consequently, it would seem that they require to be highly motivated, self-reliant and very disciplined to study effectively, for the most part in isolation from University staff or other students.

3.4.5 Evaluation and Research

As any professional educator would know, teaching (at least how the Army is alleged to perceive it) can be distilled down to three essential stages: "You tell them what you're going to tell them, you tell them, and then you tell them what you have told them!". Expressed in more familiar educational terms, objectives of the lecture or course are outlined, the content of the course is presented and at the end of the presentation, a recapitulation or summary of the main points is made to ensure that the messages have been accurately received and understood. That is an acceptable simplistic formula as far as it goes but an important element is missing. The educational process is really not complete without systematic evaluation being part of that process. Yet that final part of the process is often neglected in conventional educational systems, as well as in non-traditional systems, and perhaps for similar reasons.

There reasons may have something to do with the time, effort and expertise required to construct valid and incisive evaluative instruments that will yield useful and convincing data on which remedial actions can be confidently based. Alternatively, there may be so many deficiencies in a complex, large-scale system like a DTU that the process of survival has to receive higher priority over refinement, and so evaluation has to wait for a more propitious time. On the other hand, it may be that 'everyone in the system knows what is wrong so there is no need to hold an inquiry to find out'. Or perhaps it is that research and evaluation as a systematic process is considered to be a fine-tuning mechanism, a luxury that only well established and smoothly operating systems can afford. For whatever the reason, research and evaluation generally do not seem to feature as high profile activities in the university case studies that are represented here, nor is it expected that the situation would be very much different in many other large-scale distance teaching universities. CIET, though, perhaps because it has a different role to play and because evaluation is a logical and necessary part of the experiment, is something of an exception.

CIET's case study indicates that if all the procedures are carried out effectively, a multi-faceted research and evaluation programme is in place. It begins with needs analyses and studies of profiles of potential audiences and there is regular interaction between researchers and producers on the one hand and the audiences on the other. Occasionally there are pilot programmes to test the scripts before final production. Programme feedback is also obtained by testing the reactions of randomly selected groups of children by video playback techniques and some teachers are trained to submit regular reports on their classes' reactions. Other viewers comments are also invited by inserting captions at the end of each telecast.

CIET also attempts to monitor the total system although not all strategies are equally successful. They include utilisation reports from television custodians, state surveys and reports from field investigators. Yet it seems that the two most telling factors which inhibit the optimum use of the television programmes are not so much educational in nature as practical: one is the ineffective maintenance of television sets which results in many being out of order for lengthy periods; the other is the erratic nature of the supply of electricity in some areas.

Of the four university systems, STOU would seem to have the most sophisticated research and evaluation structure and appears to have a fairly extensive range of ongoing research programmes that have direct application to the improvement of teaching as well as those that are discipline-related like those found in more conventional universities. A Research Committee exists under which the Office of the Rector conducts general institutional research, the Office of Educational Technology concentrates on distance education media, the Office of Registration, Records and Evaluation on improving registration and examination procedures and the Office of Academic Affairs on academic development.

Of special concern in the context of 'educational processes' are the projects on the use of various media in distance teaching. One such project is concerned with an experiment in the use of a Canadian computer-aided-learning programme called 'VITAL'. Other projects are attempting to evaluate the quality of programmes and learning materials currently in use, such as texts and printed study guides, radio and television broadcasts and cassettes, both audio and video. It is not known how many of these research and evaluative studies have been completed, what the findings are or if there has been any application of such findings to improving the teaching and administrative systems. But a start has been made and some Asian institutions will be looking to STOU in the future to draw on some of its research output which might have relevance for their particular distance education models and modes of operation.

A different situation obtains at UT because as yet no attempt has been made to introduce systematic evaluation processes either with a view to improving learning materials or to streamlining administrative procedures. Some informal feedback from students is obtained in a rather random and informal way in tutorials and students are encouraged to correspond directly with central academic staff of UT if they have problems with their course materials but there is no suggestion in the case study that this form of communication is widely used.

CRTVU also seems to lack a unified or systematic approach to evaluation and research that might effectively guide pedagogical changes to the system where change is warranted. Academics from other institutions are used to evaluate written materials before publication but in terms of gaining feedback from the system itself (that is, from staff and students), the processes appear somewhat random. Academic meetings are held throughout the nation and regional meetings especially are meant to provide reactions to teaching and administrative practices. Students and tutors may write to staff of the PTVU's at various levels but, like UT, there is no indication as to how widespread the response to this invitation might be or if reactions from staff are generally prompt and positive. The situation is looking brighter for the future, though, with a Research Institute being planned for 1990 to coincide with CRTVU's Tenth Anniversary celebrations and this is intended to promote a series of seminars, international symposia and visits from overseas and national experts in various facets of distance education. This should provide a catalyst to research that might benefit the system as a whole.

IGNOU also does not yet have a research and development strategy in place but it has not had until very recently sufficient students to provide meaningful data on which to act. It is planning however, to set up a Division of Programme Evaluation in the near future that will concentrate its attention on evaluating its teaching methods, materials and media. In the meantime, limited feedback on course materials is obtained formally through the use of questionnaires to students and informally as well through correspondence.

Overall, then, a rather limited start has been made by one or two institutions in the group but clearly there is a need to raise the profile of research into distance teaching if lessons are to be learnt that are more than merely intuitive and if conclusions can be reached which will improve our general understanding of the processes involved in learning at a distance in different sets of circumstances.

3.4.6 Staff Training and Development

Of the four countries represented in this study, only India had experience in distance education before embarking on a national system on a large scale. But until 1982 when the Andhra Pradesh Open University was established in that state, the Indian precedents (as represented by Directorates of Correspondence Courses attached somewhat tenuously to conventional universities) would not have been particularly helpful.

Because most staff who have joined a distance teaching university in Asia either as academics or administrators find themselves in unfamiliar territory, a programme of staff training and development in the many new skills and functions that are required to be performed is an essential ingredient to the long-term success of such a system. But unfortunately, like evaluation and research, the notion of a systematic professional programme of staff development is more often supported as a theoretical ideal than a practical necessity. Consequently, it is unusual to find significant resources allocated for this purpose, especially in the early stages of development when they are most needed.

It would appear, however, that IGNOU is attaching some importance to the training of its staff, especially in the areas of course development and academic counselling. Overseas consultants are sometimes available to assist in this training while the Divisions of Distance Education and Communication conduct orientation programmes. Orientation programmes are also given to part-time co-ordinators and academic counsellors (tutors) who staff the local study centres. Selected members of the full-time staff have also been able to undergo training and study visits in the U.K. as a result of financial assistance from the Overseas Development Administration through the British Council. We shall have to wait a while, however, to see how positive the effects of such approaches prove to be.

While the other three universities have developed procedures for assisting authors recruited from conventional universities to write course materials in an acceptable distance learning mode and to help them as a members of course teams to understand the broader principles involved in such aspects as choosing media, setting assignments, providing guidelines for the functioning of tutor-counsellors and determining the nature and format of examinations, not a great deal seems to have been achieved so far in setting up ongoing training programmes for permanent full-time staff who may have had to learn 'on the job' through trial and error themselves but now bear the main responsibility for inducting new teachers into the system. UT, however, from 1986–88 under CIDA Project Phase II, has sent its staff to attend training in management and system evaluation in D.E. There are now 21 academic staff holding M.A. degrees in these areas as a result of the project.

CRTVU now recognises the importance of such staff training after a ten year period of development without a systematic approach to the problem. It has expressed the response thus:

> "The training of TVU system staff is an urgent task. Teachers, technicians and administrative staff members will be trained in different groups on a large scale. Some of the training will be operated by Chinese experts within the CRTVU and PTVU's, some will be conducted by foreign experts in China and some will take place abroad. The training centre is being set up and will soon be in use."

Several regional conferences in recent years have identified the need for such training and recommended that a training centre be established to serve the Asian distance teaching systems. The possibility of such a centre being established under the aegis of STOU has been mentioned.

CIET is already engaged in training its staff and that of SIET's in script-writing production, management and technical operations, with assistance from UNDP.

3.5 Administrative Processes

3.5.1 Institutional Cohesion

Although the educational processes described above are central to the functioning of a distance education system, their co-ordination is to a large extent determined by the administrative processes which are designed to underpin them. As far as the individual student is concerned, impressions of the system that he or she is about to enter or eventually enters are generally formed by the efficiency or otherwise of the administrative processes which operate in such areas as information and publicity, admission/enrolment or registration procedures, response to student inquiries and possibly fees collection. Then, once having managed successfully to enrol, he or she will be significantly affected by the manner in which other administrative functions are performed, namely the delivery of materials (or alternatively, arrangements for collection by the student at a central point), the purchasing of textbooks, the submission and return of assignments, administration of the examination system, the co-ordination of study centres, arrangements for attending personal contact programmes, and if all has gone well, a graduation ceremony. Of critical importance to the system as a whole is the design, development and maintenance of an accurate and detailed student records system without which it is difficult to see how effective co-ordination could take place either in the centre or between the centre and its regional network.

Certainly, without a smoothly functional records system the individual student can have little hope of efficient responses to inquiries, of his or her progress through the course or programme being carefully monitored or of receiving appropriate information from the organisation at the right time. In a real sense, administration in a DTU must be seen largely as an administrative student support system as it has to take on a much wider role than that which is usually assigned to Administration in a conventional university where 'student support' is regarded essentially as the shared responsibility of academic departments, university counsellors and student organisations.

In short, in complex organisation such as a distance teaching university, unless the administrative processes are carefully planned and adequately resourced and implemented, the teaching-learning strategies, no matter how well developed they may be, will not be able to function as they were intended to do. Indeed, to think of administration and teaching as two separate entities in a distance education system rather than two sides of the one coin is to misunderstand the key role that administrative services have to play if teaching and learning are to function at all.

3.5.2 Centralisation and Decentralisation

The various approaches of the different systems represented in the case studies generally reflect differences in the extent to which student administrative support processes are centralised or decentralised.

In the centralised structure of STOU, for example, the Office of Registration, Records and Evaluation is responsible, as the name suggests, for admitting and enrolling students, and keeping student records. The same Office organises examinations by having its central staff take examination papers to the examination centres where local invigilators (some 6,000 of them) supervise the conduct of the examinations. Students are informed of their results by the same Office about 30–45 days after their examinations. As far as the activities of the study centres are concened, two Offices at STOU are involved, with academic activities such as tutorials and orientation sessions being handled by the Office of Educational Services and matters associated with applications and examinations being once again within the control of the Office of Registration, Records and Evaluation. How effectively the responsibility for such decentralised activities can be shared is a matter for conjecture. Certainly there needs to be close collaboration between the two Offices if all the services provided by the study centres, both the academic and the administrative, are to be well co-ordinated and unambiguous as far as the recipients, the students, are concerned.

IGNOU, has created a special Division of Regional Services for such purposes but without a detailed list of the functions of that Division being provided it is not known how centralised within the Division the servicing of the centres will be or whether some of the functions will be shared with other Divisions as they are at STOU.

At UT, the organisational structure includes an Academic Administration and Students Affairs Bureau under which a Registration Division, a Student Development Unit and a Distribution Unit operate. While this would suggest that administrative functions such as student registrations, student records and materials delivery might be very centrally co-ordinated, even if locally administered in part by the Regional Units situated across Indonesia, the reality certainly is different. Admission procedures, the collection of fees and orders for learning materials, for example, seem to be a shared responsibility between the Directorate of Post and Telecommunication (with which UT has signed a contract for the purpose) and the 32 Regional Units. Students can register and pay fees through post offices throughout Indonesia while the Regional

Units "are also able to help the students regarding registration, examination, learning materials and other inquiries". With such crucial administrative procedures in the hands of an outside agency such as a national postal service, it is difficult to understand how the University is able to offer efficient and prompt service to potential and enrolled students, exercise control over these procedures or maintain accurate and up-to-date records from the outset. The matter is not improved by the fact that learning materials do not have to be purchased as a requirement of enrolment so the registration process would no doubt be varied according to student choices on the matter. In such circumstances, it would seem that a degree of sensitive counselling from University staff members would be desirable but that obviously is not likely to happen if postal officials are conducting the registraion process on behalf of the University. Furthermore, in the absence of study centres and with little or no regular contact with tutors, students really seem to be left much to their own devices to resolve any problems that they must inevitably encounter with the system. In many cases, only the *UT Catalogue*, "the main medium of information... about registration procedures, purchase of materials, courses offered and how to select them, student fees, examinations, tutorials etc.", would be on hand to help them.

The delivery of learning materials also seems, from the information provided, to be another crucial procedure that is rather loosely administered. As has been mentioned before, UT students are not compelled to buy the course materials that have been designed for their learning at a distance. This was essentially a political decision taken by the Indonesian Government so that students would not be denied an opportunity to enrol with UT on economic grounds. The consequence is that it is almost impossible for UT to calculate how many copies to produce and piles of surplus materials are building up in storehouses as enrolments of new students dwindle and many continuing students apparently manage by sharing with others or, more disturbingly, without the materials at all. In the cases of students who do buy the materials, they have a choice of ordering directly from UT headquarters, from the Regional Units, post offices or bookshops. The materials are normally sent to individual students' home addresses by post offices or private parcel services, by surface mail or airmail, but often because of poor services, late despatches or the remoteness of the area concerned, students may have to collect them from post offices themselves. With over 6,000 inhabited islands to serve, the distribution task is enormous and would tax the ingenuity of any institution to overcome such a challenge. Nevertheless, the involvement of so many outside agencies can only compound the problems and must lead to many frustrations for both UT staff and students when any one of many links in the administrative chain fails.

UT represents a centralised system that by circumstances associated with its rather hasty planning and shortage of resources has been forced to rely rather too heavily upon the staff of all mannner of outside agencies (including conventional universities and colleges, schools, government offices and utilities). As a result, the University must find itself in an unenviable situation where those administrative functions that are so important to the way that students relate to the system as a whole (and in a small-scale system are normally carried out by full-time central administrative staff) have to rely mainly on people who are not necessarily committed to the mission of the University, have been poorly trained (if at all) in fulfilling their respective roles and are unlikely either to understand the needs of the students or really want to care for them, in short, extend the Human Touch.

In contrast, the decentralised system of CRTVU virtually means that in terms of administrative support to students, the full responsibility rests with the PTVU's so that all of the functions mentioned above are undertaken by them directly or through their branch schools and related units. The students do not so much belong to a national open university as to a regional one that is part of a national system, so that the geographical areas and the cultural differences within those areas are likely to be much more manageable than the situation that UT faces. Furthermore, the provision of services, materials and information to students once they are enrolled and attending classes would have to be a relatively simple task compared with providing the same services to students scattered about the countryside studying for the most part independently, especially if 6,000 islands had to be reached in the process.

The Provincial TV Universities operate with a great deal of autonomy, especially where the development of programmes peculiar to their own regions are concerned. In such cases, the curricula, teaching materials, broadcast programmes, student support and the setting of examinations, as well as the supervision of branch schools and work stations, are totally under their control. Indeed, the organisational links between CRTVU and the TVU's in the provinces seem to be most obvious when the latter are called upon to administer and mark examinations in courses offered nationally by CRTVU, keep student records and award certificates and diplomas to successful graduates. Devolving responsibility for servicing students to this extent can only be justified in such a system where the regional 'units' are universities in their own right and structures can be set up in these units virtually to duplicate the structure of the 'parent' body which is chiefly responsible for setting the parameters within which all the composite parts agree to work. And this is exactly what has been done since the TVU's have essentially the same departmental structure as the CRTVU in Beijing.

IGNOU, at this early stage of development represents an interesting study in the dynamics of centralisation and decentralisation. Currently, its academic and administrative support systems are much more centralised than the structure of 12 regional centres and 120 study centres would suggest. But as enrolments increase and become more widely distributed, some of the functions which are now centralised at headquarters in Delhi will gradually be handed across to the regional centres.

At present, enquiries are handled by all three levels of administration, at headquarters, regional and study centres. Admission and enrolment, the collection of fees, the maintenance of student records and the organisation of examinations are centralised in Delhi, with copies of student records made available to the regional centres which are responsible for the detailed organisation of examinations that take place in the study centres. It is planned that eventually the admission/enrolment process will be decentralised as the regional centres assume this function and the Regional Services Division is already working on this as a high priority.

With computerisation of records it is not only possible but necessary and desirable in the interests of control and evaluation of the total system to maintain student records centrally and provide the regional networks with whatever information is needed for their efficient and effective operation. This places the onus squarely on both the central administrative offices and the regional administrative units to ensure that each understands the information needs of the other and that these needs are met accurately and promptly. Because of the crucial nature of the examination process for both the students and the system itself, in terms of integrity that is associated with security and consistency of implementation of procedures nationwide, policy and practices must be centrally determined even if the examinations themselves have to be a decentralised process for the benefit of a scattered student population.

3.5.3 Defining the Regional Role

Yet it does seem that in large-scale operations such as the four case study DTU's represent, other support services of an administrative kind need to be as decentralised as possible. This does not mean allowing authority to devolve right down to the most junior staff in the smallest study centre but it does mean developing the role of the regional offices/centres/units in the respective systems more fully than they seem to have been up until now. 'Development of the role' of regional centres is a term used advisedly for it is intended to convey more than just providing extra staff or facilities in a bigger or more conveniently located building. If these centres are to provide support to those students who need it most then they have to be more than reactive. They must be proactive. That is, they must be prepared to initiate strategies to counter the drop-out syndrome, ensure crucial information is received by the students, conduct regular surveys of student needs and evaluate how effectively the system is meeting them, project a caring, sensitive image on behalf of the University as a whole to the community, through the media and by word and deed. After all, for all but a handful of the students, 'The University' will be identified with the regional and local units since that is all of the system that will directly affect them for most of their student days.

IGNOU still has time to develop such a role for its regional centres virtually from the outset. It might be appropriate if STOU and UT considered what it is that is lacking in their respective regional systems and apply some of these suggestions as criteria for evaluation of them. In the meantime, UT is looking to the development of a much more adequate computer network that will enable it to decentralise the present system and give more authority to the Regional Units so that an improved service to students can be given.

3.6 The Systems in Review

This brief analysis has attempted to look at some of the main elements in three phases of development of five national educational systems making large-scale use of communications technology. It began with the planning phases, some of which were all too short for the planners, then looked at the designs and structures that the planners managed to produce in whatever time and with whatever resources were allotted to them by their political masters, and finally, it examined the educational and administrative processes that constitute the dynamics of the systems as students might experience them.

In this process of analysis, there is always a danger of the analyst focusing attention more on what appears to represent problem areas requiring other 'solutions' than on those areas of activity that have proven to be successful and worthy of further development both within the system and by others. This may well be the case with this analysis so in this concluding section the positive outcomes of the systems as well as the problems and priorities that they themselves have generally identified for future action will be presented.

But first it is interesting to be reminded of the characteristics which distance teaching universities tend to share, for these very characteristics taken singly or as a group represent educational planning and management challenges that are unlikely to be equalled in their magnitude or required speed of development by any other form of educational venture.

3.6.1 General Characteristics of DTU's

Rumble and Keegan in Rumble and Harry (1982) have identified eight characteristics which are generally regarded as features of distance teaching universities:

a) A conscious and systematic approach to the design of learning materials for independent study.

b) The use of a wide range of media and other resources to teach, necessitating a variety of production and distribution systems appropriate to the media in use.

c) Associated with the use of the various media, a marked role differentiation of staff.

d) The centralised design and production of materials, combined with localised learning.

e) In a number of systems, a marked division of labour between those responsible for materials design and production on the one hand, and those responsible for tuition and assessment on the other.

f) The provision of two-way communication between students and tutors who generally operate at a distance from the student (correspondence tuition, telephone tuition) but with the possibility of occasional meetings between students and tutors (face-to-face tuition), thus imposing on the institutions a need to organise and control these channels to ensure both their effective and their efficient operation.

g) The introduction into an academic community of a number of quasi-industrial processes which require appropriate management techniques and a hierarchical government structure of management and control which does not aways relate easily to traditional forms of university governance.

h) Extensive and well defined administrative areas.

How well do our Asian university case studies match these eight features?

There could be little argument with those characteristics that relate to (a) learning materials design, (c) staff differentiation, (d) and (e) centralised production processes distinct from localised teaching, and (g) unfamiliar structures and forms of management. But "the use of a wide range of media", "the provision of two-way communication between students and tutors" and "extensive and well defined administrative areas" would have to be used rather tenuously to describe some of the systems represented in the case studies. Indeed, though all four universities may be able to point to the use of different media that do necessitate a variety of production and distribution systems, the use of some of them are almost token both in the extent to which they are used by the institution and even more so when measured by the use that students make of them. Television and radio come immediately to mind in this context. Secondly, it is the very absence of "two-way communication" and "well-defined administrative areas" in some systems that represents their greatest weaknesses.

The important point is, however, that each of these eight characteristics calls for new attitudes, new skills and new forms of professional relationships that test the adaptability and competencies of personnel to the limit. Such enterprises need outstanding managers and dedicated staff throughout the system if they are to operate smoothly and effectively as planned. In most cases, such personnel are not available for the task at hand, so that between theory and practice, or the ideal and the reality, there generally exists a gap, variable in its dimensions. The consequences of all this are soon evident for all to see, unlike conventional systems which operate in a far less visible way. And distance education systems will have a continuous series of challenges and problems to cope with. Some are more serious and difficult to resolve than others because they flow from fundamental flaws in the original philosophy and design; some may reflect weak organisational structures or ineffective management styles that can be readily improved as systemic deficiencies show up; others, perhaps the vast majority, may be merely operational where 'fire-fighting' techniques are called for and comparatively cosmetic changes made, often in areas of improved communications and attention to detail in routine procedures.

3.6.2 Some General Problems

As would be expected, just as the educational models differ and the contexts in which they operate are diverse, so too the problems and priorities for action vary from one system to another. Some of these are identified by the institutions themselves and referred to in their final chapters called Trends and Priorities; others emerged during discussions from the two meetings held in Ahmedabad and Bangkok, but especially in the frank and open discussions of the latter; others have arisen out of the analysis itself as one system's approach is compared with another, similarities and differences are highlighted and the educational outcomes evaluated.

What becomes clear is that there are common problems that confront all distance education systems the world over so that they are to be found in varying forms in all the Asian systems as well. But as has been shown, they are manifested differently in individual systems. It is proposed to summarise these general problems that have been touched upon in the above analysis and then look at how they are affecting the individual institutions in adverse ways. In the process their response to them and the setting of priorities for remedial action will also be examined.

What, then, are the common problems facing the DTU's within the region (and, for that matter, probably in most countries outside it)? Most can be identified in the order in which they arise in the above analysis. They include the following:

a) Distance education systems generally have been asked to begin operations in physical facilities that are not only sub-standard but almost dysfunctional. Some are still in that state after ten years of operation although one now enjoys facilities that are envied by professional colleagues from more highly developed countries.

b) Most have been given too little time by their political masters for the planning stages, especially when there are no national precedents from which experience of some form of distance education might have been gained.

c) Most systems have been called upon to begin on a large scale and continue to expand both enrolments and programs, generally with resources that are not commensurate with such expansion or that recognise what is needed to ensure a viable operating system, with all that this entails in terms of stresses on management and staff, structures, communication processes and operational procedures.

d) The complex organisational structures that have been designed to facilitate the co-ordination of functions between the central university and regional networks have generally not produced the level of cohesion expected of them, in some instance being the result of operational uncertainties rather than an inherent structural design deficiency.

e) Recruiting qualified and competent staff who are committed to their tasks is one of the most crucial and least resolvable problems, especially in cultures where such do not exist in numbers required to match the demands of rapidly growing conventional and non-conventional educational systems and where there is such heavy dependency on a large proportion of part-time staff to be responsible for the teaching and counselling processes.

f) Reliance on a course team approach and dependency on large numbers of outside academics as course writers or subject experts (over whom tight institutional control is difficult to exercise) for the development of learning materials has proven to be a problem for management in particular and human relationships generally, without necessarily guaranteeing the design and production of high quality materials but almost guaranteeing significant delays to the despatch of learning packages with a consequent reduction in time available to students to complete assignments or prepare for examinations.

g) Staff training programmes for developing distance learning materials have not generally been effective because of the lack of specialist staff in the area of instructional design and difficulty in getting the relevant staff to attend such programmes on a regular basis.

h) Some teaching strategies depend too heavily on the production of independent study materials and too little on blending them with interactive elements. In such circumstances, a positive educational experience has to rely almost exclusively on the efficient despatch of high quality materials. If there is neither administrative efficiency nor academic quality, then the learning experience can be devastating as there is no other form of academic support available.

i) The use of broadcast media continues to have severe practical limitations including costs, the difficulties of producing high quality and entertaining programmes that students will want to view or listen to, insufficient access to viewing/listening facilities, schedules of programmes that seldom suit the majority of distance learners who are working adults, lack of interaction for the sutdent who receives these programmes in isolation and little support for the total learning process in general.

j) There is a general need for the provision of more effective local student support services operated proactively by, but not only at, regional and local study centres, if the majority of students who need these services are going to receive them.

k) Provisions made for student feedback and assessment, as obtained through assignments and examinations, are generally in need of urgent review.

l) Applied research and evaluation strategies have not yet been developed sufficiently to have much impact on effecting changes to established systems.

m) Administrative processes that are required to give cohesion to the total system form a student perspective (e.g. information services and publicity, enrolment and registration, materials delivery, the organisation of examinations, monitoring student progress, providing administrative student support and maintaining student records) are generally in need of better co-ordination.

This list is not intended to be comprehensive but neither is it meant to suggest that all the problem areas mentioned necessarily apply to all systems or that those problems which do affect them do so equally or to such an extent that they are unable to operate effectively for a significant proportion of their students. A brief look at each system in turn to try to identify its most pressing problems and priorities should prove the point.

3.6.3 The Individual Systems: Problems and Priorities

a) IGNOU
At one extreme, where the short span of time has seen a concentration on the planning and implementation phases concerned with programme and materials development rather than fine-tuning of operational procedures relating to student support, IGNOU already recognises that the course team approach to the design and production of learning materials has its own inherent difficulties as alluded to above. In practice, course team collaboration has proven to be an elusive quality and it has not been easy to get the job done in time and at the quality level required; in a few cases, teams have been disbanded for lack of progress. As experience in managing the sensitive nature of course team dynamics grows and course writers are inducted more effectively into the unfamiliar challenge of producing quality distance education materials, this problem should become less threatening.

IGNOU is also already sensitive to the fact that the whole area of student support needs further evaluation and development, especially now that a phase of rapid growth has begun. The functioning of its tutor-counsellors in the study centres, in particular, is planned for review. The move towards further decentralisation of responsibility to the Regional Centres should facilitate this process provided that the more remote rural areas are targeted for special attention at an early stage of development and effective monitoring procedures are implemented to allow the central administration to be fully informed about the performance of these Centres in servicing student needs.

It would be surprising, however, to learn that similar experiences have not been common to most other distance education systems around the world since the course team experience represents a major innovation for the majority of university academics.

b) Universitas Terbuka
UT would appear to be beset by a daunting number of problems of a fundamental nature that will require some dramatic, if not traumatic, changes to be made before it can be accepted by the community as a viable alternative to traditional forms of higher education. The educational philosophy and the current organisational arrangements that have been designed to support it are clearly not working. The weak response in terms of new student enrolments since the first year or two and the rapid increase in the numbers of 'passive' students who are unlikely to seek re-enrolment provide telling evidence of this.

Central to this unsatisfactory situation is the failure of the University to develop teaching and administrative support strategies that are appropriate for the very challenging context in which they are being required to operate, a context that would sorely test any educational enterprise. Many of its operational problems can be traced to insufficient time given for planning and implementation but subsequently the position was exacerbated by the manner in which personnel had to be recruited resulting in many lacking qualifications for the jobs that they hold and being poorly inducted and supervised.

But a distance education system that has to serve a nation with a population as dispersed as Indonesia's (and so far has not been able to make effective use of large-scale communications technologies such as satellite transmissions), cannot hope to function effectively without decentralising its operations beyond what it has attempted to do so far. Furthermore the University is reluctant to insist, perhaps for socio-political reasons, that students possess learning materials; this would not be so serious a policy matter if the materials that were being produced were of such quality that the vast majority of students regarded them as essential ingredients for success and bought them as a matter of choice. But this does not seem to be the case and the position is not improved by the fact the UT also seems to be experiencing difficulties not only in producing course materials of quality but more than the usual problems in developing them on schedule.

The dynamics of the educational process that determine the learning experiences of its students are generally disappointing: no feedback or interactive learning activity to students is provided; there are no study centres; tutorial classes have virtually been abandoned because of lack of support from disaffected students; and assessment is carried out only through multiple choice examinations that have been found in some circumstances to tempt students to try to satisfy the examiners by methods other than actually studying the learning materials.

Additional tension has been created within the system as a result of a general incapacity of the administrative functions to operate efficiently. As a consequence, the system overall lacks the cohesion and responsiveness that are necessary to retain students and provide a positive learning experience for them. It has been suggested that there is real need for improved performance at the level of middle management where many errors and delays are occuring. These could be reduced through closer supervision of staff, more on-the-job training and greater staff involvement in problem-solving through group discussion. It seems that not only qualifications and training may be deficient but that management has a more fundamental challenge of raising staff morale, an element that is absolutely crucial to developing the commitment that is required in administrative staff in distance education systems where working accurately and quickly under pressure is the norm rather than a characteristic of a peak period.

What has just been outlined will not be received as a revelation to the UT authorites. They are, if their project representative is any indication, fully aware of the deficiencies in the system, why they exist and, in many cases what needs to be done to begin to remedy them. Their priorities for action and an awareness of the possible limitations of these 'solutions' as outlined in the case study is a clear indication of this: the development of learning centres to encourage more active and interactive learning and provide the essential learning materials and support facilities, the development of practical laboratory programmes and home study kits for science-oriented courses, the upgrading of learning materials by employing more full-time module writers and providing more explicit guidance through the development of models worthy of imitation in principle, new approaches to accelerating the rate of provision of quality learning materials by 'buying in' some course materials, and, very importantly, the development of an improved computer system to link the regional units with UT so that they may assume a more positive role in the administration of the system as it affects local students.

These innovations will, however, only be as effective as the people responsible for making them work. It is here that personnel management assumes a critical importance because innovations are unlikely to work well unless the users (in this case, both staff and students) are led to believe in them and so want them to work.

c) STOU

In some respects, although STOU has had ten years of experience and now has a campus and facilities of which all can be proud, it is conscious of still having some pressing challenges that require resolution.

Of special importance are those associated with managing a range of diverse people in a team so that quality learning materials can be produced on time: the ever-present management problem for all distance education systems. But more fundamentally threatening to the system than this is the University's educational practice (which it shares with UT, but not CRTVU or IGNOU) of not requiring students to submit regular assignments. Without assignments, the institution has no evidence that students are making a serious attempt to study the materials that are prepared for them, nor can it provide students with the feedback that they need to assess their own progress and remedy their weaknesses, the essential element of effective teaching and learning. Until that is changed, both universities fall well short of meeting that 'general characteristic' of Rumble and Keegan's, "the provision of two-way communication between student and tutor" which in the view of most distance educators is a necessary, rather than a desirable, element in an effective distance learning system. It is reassuring to learn, however, that the University is now in the process of planning to re-design one course from each faculty to include interaction through assignments and directly with academic staff, and in due course to evaluate their effectiveness to see if retention and performance are improved.

Again, similar to UT, STOU not only depends almost exclusively on formal examinations for student assessment but that assessment is restricted to multiple choice computer-marked examinations which present their own set of formidable problems in terms of their validity and reliability and students' perceptions of them as far as the nature of the learning that is required to pass them.

Another area of special concern is that which confronts most systems that attempt to use radio and television as a significant and cost-effective way of reaching widely scattered audiences in large numbers. While the technology now makes this possible and national governments and many distance education systems regard the use of such media as desirable, (sometimes for reasons of status, sometimes to demonstrate the forward-looking nature of the enterprise), there are few, if any, examples of multi-media systems that include broadcasting where students do not perceive broadcasting as the most expendable resource. In short, even if quality programmes can be produced and transmitted at convenient times (two criteria that STOU and most other systems find difficulty in meeting), students the world over tend to ignore them and concentrate their attention on the humble but more permanent and user-friendly media of the printed word, perhaps supported by another 'low-tech' medium of the audio cassette.

STOU's problems in this context are exacerbated by a situation wherein there is a constant turnover of skilled professional television staff who are tempted away to private enterprise by more attractive remunerative arrangements. While this may be presented here as a problem peculiar to STOU, it is no doubt a problem that has to be grappled with by distance education systems everywhere. It certainly is of very real concern to an institution striving to improve the quality of its educational programmes. And there is no easy solution even if the institution if free to act autonomously to seek its own remedies. It is much more serious for STOU that is directly responsible to the Ministry of University Affairs and therefore may not be free to negotiate different conditions of employment that might enable it to retain the services of such key personnel for whom replacement is difficult.

The relationship with the Ministry of University Affairs has been mentioned as a factor contributing to slow, if not unwieldy, processes of administration which in turn prevent the University from reacting more quickly to effect changes in policy and practice where they are felt to be needed by those at the 'workface'. As a government university, STOU is regarded by the Government as another department in that is has to abide by government regulations relating to such matters as financial transactions, the provision of facilities and equipment, and procedures for correspondence, whether or not they are appropriate for the circumstances. Even all new courses have to be approved by the Ministry before they can be offered to students. It is not difficult to imagine in such circumstances that decision-making processes within STOU could be somewhat inhibited.

The position is not improved by the fact that STOU's own decision-making processes are highly centralised, with decisions at almost all levels having to be approved by the President, or in some cases, by the President with the endorsement of the Academic Senate. How much all this slows down the administrative processes is impossible to quantify, but of equal concern should be the effect it must have on diminishing initiative and discouraging the acceptance of responsibility at subordinate management levels where action needs to be taken and taken quickly to resolve management crises that without prompt solution can seriously affect the progress of thousands of anxious students. STOU does not appear to be alone in having a need for a more streamlined and less bureaucratic decision-making process that will allow for more shared responsibility among professionals. Nor would it be unique in its need for more interaction among its own full-time academic staff to share knowledge and experience on a regular basis leading to recommendations for improvements to policies and practices within the system.

d) CRTVU

As the case study itself shows, there is a general awareness of the need for some wide-reaching reforms in the CRTVU system. This was manifested in a national meeting of presidents of CRTVU and the PTVU's in 1986. High on the list of recognised problems were such matters as the limited time for television transmission, poor educational use of the media, inconvenient viewing and listening times for the growing numbers of 'spare-time' students, delays in print teaching materials, study overloads, insufficient provision of experimental work and too little distance education research.

In response to some of these problems, priorities have been set and changes are being implemented. Most noteworthy is the move to the introduction of new multi-media courses that will feature carefully designed printed material as the core (designed under the "three-in-one principle" of course book, reference book and study guide) with radio and television playing a more supplementary role. Already, because of dissatisfaction with past practices of employing mainly outside subject-matter experts, many of whom have had considerable difficulty in writing for distance learners, more full-time academic staff have been appointed to CRTVU to be engaged exclusively in such activity, albeit often in collaboration with academics from other universities. This is a significant step to have been taken. Other systems which suffer the same problems of depending heavily (and not too successfully) on 'outside experts' might also seriously consider similar moves as a viable alternative. The cost factor, of course, is relevant but should not be allowed to exclude considerations of quality control and productivity.

Other improvements are under way. The poor TV techniques of 'the talking head' or 'the moving hand with chalk' are also receiving attention with more training programmes being introduced and improved guidelines for the production of audio-visual teaching materials being laid down. Research centres are being established in both the CRTVU and the regional network of PTVU's, and research projects are already in train on evaluation, cost analysis and the theory of distance education. More short term courses are being developed, too, especially for vocational training in rural courses, and area somewhat neglected until now because of a preoccupation with raising the education and skill levels of factory workers and related industrial activity. All in all, it seems that the general spirit of change in the Chinese society as a whole is being reflected in a conscious desire to make significant changes to the CRTVU system that is expected not only to continue its present achievements but improve upon them and assume an even more important role in equipping society to cope more effectively and positively with the many changes that lie ahead of it.

e) CIET

The main problems for CIET are essentially to do with expanding the provision of ETV programmes so that more and more children in and out of schools can be exposed to them. One significant response from the central Government is the plan to expand the initial provision of television sets of 4,500 to 90,000 within the next year or two. This needs to be balanced against the fact that one of the main operational problems is to improve arrangements for the maintenance of television sets so that programmes can be received. Steps are in train to do this. Another response is in the form of a plan to repeat morning programmes in the evenings and give access to school sets at that time so that out-of-school children can view the programmes with their parents and the general local community in support. This is obviously necessary in a country where only 5% of households possess television set.

No doubt the quantitative and technical issues can be more easily resolved than the qualitative ones which are not so much those that can be readily controlled by monitoring and evaluating the nature and content of the programmes produced at CIET but rather those associated with what school teachers do with the programmes as they are being received. This is not so easy to control, as CIET is aware. Consequently, it must be of major concern to those involved in the production of programmes not being able to make a direct input into the interactive process that the programmes are intended to promote in the classroom. The motivation and training of teachers must therefore continue to be of paramount significance. Convincing their superiors, as well as other agencies like the state electricity commissions, to recognise the important function that ETV is attempting to perform must also continue if the essential facilities are to be provided with a degree of reliability that is necessary for programmes to be seen by the children as planned.

3.6.4 Achievements and Outcomes

Measuring achievement and outcomes within an educational system is generally imprecise and seldom totally objective even when it is a quantitative exercise. When the notion of quality is introduced as well in terms of the teaching and learning processes, the exercise assumes far more challenging proportions. To attempt comparisions across educational systems that involve crossing national boundaries as well would therefore be misguided and presumptuous so that task will not be attempted here. The many variables as outlined in Chapter 2 would certainly make such comparisons 'odious'. Instead, it is useful to gain some insights into the broad impact that these systems have been observed to have made on their respective societies so far and point to their likely future contributions.

In the original Conceptual and Methodological Framework that was used to guide the compilation of the case studies, it was suggested that outcomes might be assessed in terms of such phenomena as student access and performance, the impact of distance education philosophy, programmes, learning materials and services on other forms of education (conventional and non-conventional), and the impact on society at large. The twin issues of access and equity which include an examination of achievement in terms of student inputs and outputs is dealt with in 'Part II: Synthesis' and will not be pre-empted here except to point to the fact that no matter how imperfect the educational experiences may be for some students in some systems in some circumstances, the systems generally have widened access to higher education for very significant numbers of students who would have had no viable alternative, and many have made good of that opportunity. In broad terms, all the systems can claim that their educational practices are having some impact upon many people other than those who are formally enrolled for credit programmes as distance learners.

In Thailand, distance education practices are being used by a number of Government ministries in the training of their staff and STOU has been asked for its help in running such courses. STOU also finds that its learning materials are being used quite extensively by other universities and teachers' training colleges and the public is making use of the STOU Corners in public libraries. The ever-growing 'eavesdropper' audiences that view and listen to STOU educational broadcasts is also a positive sign that demands for a second chance education will continue, both of the formal and informal kind. The concept of life-long learning is beginning to have real meaning for many Thai citizens. The University also holds training programmes both within and outside the campus, for both public and private agencies, and the development of a master plan for research will cater further for the needs of outside agencies. The imminent development of an Educational Park within the STOU campus is a most imaginative concept which will benefit Thai society in general, from young schoolchildren upwards. The Park, perhaps more than any other single concept, symbolises STOU's perception of its role as providing a many-faceted educational public service to all those who can benefit from it. In this sense, it is truly an 'open' university and must be commended for all that has achieved so far and is planning for the future.

UT, despite its own operational problems, has begun, like STOU, to raise awareness of the potential of distance education methods and materials for all kinds of educational needs other than those traditionally met by educational institutions such as schools and universities, such needs that include staff training and development in both the public and private sectors. The Ministry of Agriculture, for example, is looking to UT to assist in the training of its field workers at a distance and the Chamber of Commerce is exploring how continuing education opportunities for its constituent members in industry and commerce might be enhanced through UT in more flexible forms. The University is also playing an interesting role in the accreditation of private institutions and assisting them to develop self-learning materials. It is soon to spread its influence even further by becoming a Publishing Institute of Higher Education for learning materials. It is to be hoped, however, that in assuming these additional responsibilities, which are very visible and important for the gaining of status and acceptance in the community, the needs of its students for a rich and satisfying learning experience will be the University's first priority.

In China, as a result of the CRTVU system, one out of six university students will be enrolled in TVU's in the 1990's and the influence of the system is set to increase significantly in order to keep pace with China's modernisation process. The courses the TVU's offer are considered to be meeting social needs beyond those that can be directly linked with manpower planning needs and vocational training. One course in English, for example has sold a million copies of its learning materials and other courses in economics, management and law are extremely popular. (This issue of 'relevance' is also discussed in some detail in the next Part of the report under the heading "Equivalence and Acceptance: the Quality of Learning".) There is no doubt that CRTVU, with the changes that are in process or impending, is destined to play a significant role in China's future.

The potential for IGNOU is equally unlimited and its achievements in the future will, like other open universities, be measured in such terms as enrolment numbers, the production of quality learning materials, the imaginative use of technology in its delivery systems, and, perhaps the ultimate criterion, its ability to produce quality graduates that possess knowledge and skills that the nation needs and is anxious to employ. But it has a wider mandate than this for it is expected to act as a co-ordinating agency for all distance education systems in India which already include three state open universities and a number of Directorates of Correspondence Institutes of conventional universities. It is hoped that the end result will be a cohesive national network of distance education systems bringing education to all corners of the Indian sub-continent and especially to those people previously unable or unwilling to become involved in what more conventional systems have had to offer in the past. In the meantime, within the three years of its operation, IGNOU is able to claim that some of its learning materials are already being used by other distance education institutions in the country, that there has been a good response to its first offering of a Diploma in Distance Education and there are positive signs that there will be heavy demands on its expertise and services by society at large, as is already being revealed in the experiences of STOU and UT.

Finally, at the school level in India, the CIET experiment has obviously influenced developments in the use of educational television so that the next phase seems bound to see the orginal experiment in six states spread into at least another six states and probably beyond. The Ministry of Human Resource Development, in addition to taking steps to widen access through a dramatic increase in the provision of television sets, has decided to take on the responsibility of the production of ETV programmes, with decentralisation of production through additional SIET's and other Educational Technology cells in other states. It is to be hoped that the optimism reflected in the Government's increased commitment to this project will be rewarded by an educationally enriched audience that is so obviously necessary in the Indian context if the goal of universalisation of elementary education is to have real meaning in practical terms for the individual child.

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CHAPTER 4: RESOURCE FACTORS

4.1 Introduction

This study as a whole provides a comparative analysis of five educational institutions, loosely defined as 'distance education' systems, in Asia. It will be evident from the preceding chapters that the five institutions are diverse in their objective, institutional structures, and to some degree in the methods they employ in pursuit of their goals. The most obvious characteristic the institutions share in common is the substitution of technology for face-to-face teaching, although even in this connection there are marked differences between them. Nevertheless it is this common characteristic, and the potential which technology, and in particular communications technologies, offer for widening access to education, which gave rise to the study, and which lends interest to the results.

4.1.1 Study Objectives

The Objectives of the study, as outlined in Chapter One, are centrally focussed on the role of distance education in widening access to education. It will be evident from the discussion in preceding chapters that the issues to be considered in developing and implementing large scale distance education systems are both varied and complex. A balanced resolution of these, often conflicting, issues is needed if the objective of widening access, while at the same time providing students with an education equal to that of the best conventional systems, is to be achieved.

The central challenge for educational policy-makers lies in realising these objectives within the context of realistic and acceptable budgetary provision. Resource requirements therefore are a critical parameter of effectiveness. No approach to widening access to education, however desirable or innovative, is likely to be either successful, or emulated by other countries, if it proves unduly costly. The appropriate use of communication technology is a critical factor in determining the costs, and cost effectiveness of distance teaching programmes.

It may come as some surprise therefore to note that this study has not attempted to assess the comparative cost-effectiveness of these five systems relative to each other, or to conventional education systems in their respective countries. A detailed evaluation of the comparative cost-effectiveness of these five systems would undoubtedly be of interest. However it was recognised from the outset that the resources available for the project could not provide for a full cost study of any one of the systems, and still less for each of the five. Nevertheless the importance of the resource issue was recognised, and in particular its role as a critical parameter in assessing the approaches to the use of communications technologies for distance teaching adopted by each of these five institutions. It was decided, after some discussion at the Ahmedebad and Bangkok Workshops, to include a chapter on 'resource factors'. It was envisaged that this chapter would at least provide a description of the cost structures of the five systems and, in so far as the available data would allow, might deal with some wider aspects relating to the resource costs and financing aspects of these systems.

4.1.2 Approach to Resource Analysis

The initial approach to this aspect of the study was based on a paper prepared by Professor Francis Orivel 'Analysing Costs in Distance Education Systems: A Methodological Approach'. This paper was considered at the first workshop at Ahmedebad. At the request of the participants at that Workshop, the approach outlined in the paper was used as the basis of a questionnaire, prepared by the author of this chapter, which was subsequently disseminated to workshop participants. The initial responses to this first questionnaire, and to a second questionnaire (which forms part of research relating to a wider range of countries on which the author is engaged), together with subsequent discussions at the second workshop at Bangkok, form the basis of the data in this chapter.

It was not possible to visit the institutions, (with the exception of STOU at which the second Workshop was held). Nor was it possible to undertake first hand analysis of source documentation, in a way that would have supported in a more detailed cost analysis study. The data was provided directly by the institutions. While it is evident that the individuals concerned went to considerable lengths to ensure that data would be as comprehensive and accurate as possible, nevertheless, having regard to the constraints of this methodology, the results of the analysis must be described as indicative rather than conclusive.

It is hoped that this review as a whole will serve to increase awareness and understanding of these innovative and major distance education systems, and will be the forerunner to further and more detailed analyses of their activities and outputs. Where possible this data has been supplemented by additional information from the literature on the cost-effectiveness of technology-based distance teaching. It is envisaged that this additional data together with a brief review of some comparative studies of unit costs in media-based distance teaching programmes, vis-a-vis conventional, university education, will go some way towards addressing the wider issue of generic cost effectiveness.

4.1.3 Objectives

The aim of this Chapter therefore is to consider resource factors relating to the use of communications technologies in these five Asian systems. The approach will be to first review briefly the literature on costs and cost effectiveness of tertiary distance teaching systems, which use communications technologies. The background to the use of distance education in the four countries, in which these distance education programmes are located, will then be considered. Section four will examine the sources of funding for the five institutions. Sections five to eight will consider resource inputs i.e. staffing, recurrent costs, accommodation, and equipment. Section nine will consider the use of communications technology, and related resource issues. A short final section will present tentative conclusions, and indicate areas for further research which arise from this analysis.

4.2 Cost Effectiveness of Distance Education at Tertiary Level

4.2.1 Context

The cost-effectiveness of communications media in education, and in distance education in particular, has been the subject of considerable, if somewhat spasmodic interest, since the early Nineteen Seventies. Although some studies had been completed before that time, few had been published, and as the approach to analysis varied widely between studies, comparison of results between programmes was difficult. Following an initiative by UNESCO, an attempt was made to agree on a common approach to the analysis of costs, and on comparable units of measurement. This initiative was followed by the publication of 'The Economics of New Education Media, Vols 1–3' (Unesco, 1977; Unesco, 1980; Eicher *et al*, 1977).

In the Nineteen Seventies also a series of case studies was made on the cost effectiveness of instructional technology in education, for the most part relating to television and radio. These included, for example, studies on the use of instructional television in El Salvador (Speagle, 1972), and in Mexico (Mayo, McAnany and Klees, 1975), and on the Minerva Project in Brazil (Oliviera, 1982). Most studies of this kind were concerned with the use of communication media to support 'in school' programmes at primary and secondary levels, rather than university level distance teaching. Somewhat coincidentally, however the first studies on the comparative cost-effectiveness of Open University programmes, in the United Kingdom, were also undertaken at that time (Wagner, 1972; Wagner, 1973; Laidlaw and Layard, 1974; Lumsden and Ritchie, 1975; Wagner, 1977; Mace, 1978). Interest in the cost-effectiveness of media-based education was further advanced by the publication of a detailed study of cost methodology (Jamison, Klees and Wells, 1976).

The work of this period had two important products; first, a well established methodology for assessing the cost-effectiveness of media in education; and second, a small but growing volume of data on the costs of media-based programmes in distance education.

Various studies have been made of the cost-effectiveness of media in education, since that time. Most of these are of limited interest to distance educators in that they relate to the 'in-school' use of media, where the economics of utilisation can be quite different to those in distance teaching; all suffer from the disadvantage of being concerned with a specific programme and, as a consequence, are of limited general relevance. Moreover, for the most part these studies are focussed on first and second-level education, or on extension programmes. As a consequence, the range of comparative cost studies on media-based teaching at university level, is still quite limited.

4.2.2 Open Universities

Before proceeding to review the literature on the cost-effectiveness of distance education at tertiary level, it may be helpful to consider briefly the institutional and academic support structures which are characteristic of distance teaching at tertiary level.

Universities adopt a variety of administrative structures, academic support systems, technologies and instructional methods, for teaching at a distance. These differences in approach are important, because they influence the level, and to some degree the kind, of resources required to support their distance teaching programmes.

Various attempts have been made to develop a taxonomy of institutional structures in distance teaching (El Bushra, 1973), however the most common classification is essentially bimodal. Institutions at tertiary level are categorised on the basis of whether they teach solely at a distance, commonly called 'open universities', or are 'dual-mode' i.e. teach students both 'on-campus' and 'at a distance'. Dual-mode institutions are by far the most common form of distance teaching university; however the number of students they teach at a distance is usually a small proportion of their total enrolment. One essential difference between 'dual-mode' and 'open' universities, is the autonomy which the latter exercises in relation to distance teaching.

Kaye (Kaye, 1981) outlined the features of autonomous distance teaching institutions, of which open universities are the primary, but not the only, example. These features may be summarised as follows:

- teaching, assessment and accreditation functions are integrated;
- the institution is totally committed to external students... and there is a strong motivation to develop and enhance distance-teaching methods, free from the constraints and traditions of face-to-face teaching;
- the institution is, in principle, far freer to devise new educational programmes for new target groups, and to explore to a maximum the potential of distance-education methods in so doing;
- the institution is also freer to choose teaching methods and media, curricula, course structure, assessment procedures and accreditation policies.

It seems clear that only three of the five institutions with which this study is concerned meet these criteria in full, i.e.:

- Sukhothai Thammathirat Open University in Thailand (STOU);
- Universitas Terbuka in Indonesia (UT); and
- Indira Gandhi National Open University in India (IGNOU)

Liao Ning Radio and Television University (LNRTVU) * combines both distance and face-to-face teaching, albeit for the same, and not for different, groups of students, and might therefore be categorised more precisely as a special case 'dual-mode' institution. The Central Institute of Educational Technology (CIET) does not teach directly, but develops enrichment learning materials for use by other institutions; moreover it operates at a different educational level to the four universities.

It should not be surprising therefore to find that the resource factors and cost structures are quite different, between the three 'open universities' on the one hand, and the LNRTVU and CIET on the other, irrespective of differences in their use of technology.

- *Liao Ning RTVU is one of forty three regional universities which form part of the China Central Radio and Television University. The analysis in the subsequent sections will for the most part be concerned with LNRTVU, on which information has been provided. With a few exceptions data on CCRTVU, of sufficient range and precision to support an analysis, is not available.*

4.2.3 Studies in Cost Effectiveness

As noted above, it has not been possible to undertake a comparative analysis of the cost-effectiveness of these five systems, relative to each other, or to conventional education systems in their respective countries. It may be helpful therefore to briefly review a few comparative cost studies on distance teaching universities, which use communications technologies on a significant scale. This review may go some way towards addressing the general question of cost effectiveness. Before doing so however, it may be helpful to review the hazards involved in this process.

First, there is an acute lack of relevant, reliable, comparative data, mainly because institutions do not collect data with the objective of cost analysis in mind. Moreover much of the data which is available is based on projections of future activities, and not on experience of real operations.

Second, the structure, use of media, and sometimes the academic focus of distance education programmes, and the age and educational background of their student populations, can be very different to conventional education. As a consequence simple comparisons of unit costs between these two very different systems need to be interpreted with care if they are not to confuse, as much as they enlighten.

Third, many of the resource costs incurred in distance teaching are borne by institutions other than the university or college directly involved. Free access to broadcasting studios and transmission networks is a common example. Data on these indirect 'opportunity' costs is often difficult, and sometimes impossible, to collect.

Fourth, distance education systems vary so widely, one from another, that generalisations based on the experience of a single institution have limited relevance, and the extrapolation of results from one system to another is as likely to mislead, as inform, policy-making.

Nevertheless we now have available the results of a few studies on comparative costs of media-based, university level, distance teaching which, provided the limitations outlined above are kept in mind, may be helpful to consider.

Most studies of comparative costs, of distance education vis-a-vis conventional teaching, adopt a model of the form:

$TC = FC + VC(N)$ and $AC = (TC)/N = (FC)/N + VC$
Where TC = total costs;
FC = fixed costs;
VC = variable costs;
AC = average or unit costs; and
N = a measure of output, usually student numbers, student-contact hours, or graduates.

Although this is a simple, linear model it provides a reasonable approximation of large scale media-based distance teaching programmes. The basic model has been elaborated in a few studies by including additional variables, which are known to have an influence on costs, such as the number of courses developed by the distance teaching institution. Even in its simplest form however the model serves to highlight the importance of scale as a determinant of costs; clearly given that $AC = (TC)/N$, as 'N' increases, 'AC', or unit costs, decline.

In most comparative studies, fixed costs, e.g. of course development, are found to be higher in distance education than in conventional university courses. A comparative study of the UK Open University in 1971, for example, showed that the overhead costs for a full credit course in Social Science, was 100 times that for a similar course in conventional universities, and in the case of a foundation course in Arts it was 400 times greater (Wagner, 1977). On the other hand variable costs, e.g. of teaching and other student support services, are typically lower in distance education. At some level of enrolment the sum of fixed and variable costs will be the same in both systems. Beyond that point (given the assumptions of the model), the unit costs of distance education will be lower, and will become increasingly more cost-effective as student numbers increase.

The effects of scale are important therefore in reducing the unit costs of distance teaching, since these can only be lower than those in conventional education, if sufficient students are enrolled to reach the breakeven point. Hence, other things being equal, scale is important in achieving cost effectiveness.

4.2.4 Comparative Cost Per Student

Perhaps the most cited example of studies on comparative unit costs are those undertaken by Wagner on the UK Open University, and the most cited result is Wagner's conclusion (Mace, 1978; Jamison, Klees and Wells, 1976):

> "...that the average recurrent cost per equivalent undergraduate at the Open university is little more than a quarter of that at conventional (UK) universities." (Wagner, 1972 : 169)

Wagner found that the difference was reduced somewhat, to about one third, if the greater research activity at conventional universities was taken into account. He found also that when Open University costs were compared with the costs of part-time, as distinct from whole-time, education at conventional universities, using a ratio for converting part-time students to full-time equivalents taken from the Robbins Report (Committee on Higher Education, 1963) that the:

> "cost per full-time equivalent undergraduate at the Open University is about half of that at conventional universities." (ibid page 170)

The capital cost per student place, at the UK Open University, Wagner found to be about 6% of that at conventional universities, and he estimated that student numbers could be increased substantially with only a marginal increase in capital costs.

Muta (Muta, 1984) also came to a generally positive conclusion regarding the comparative cost of students at the University of the Air in Japan (UAJ). However, like Wagner his results also varied with the basis chosen for comparison:

> "...the current expenditure per equivalent undergraduate of UAJ is estimated to be about one fourth of that at national universities, one third of that at public universities, two thirds of day programmes of private universities, and equal to that at evening programmes of private universities. Taking study expenses and opportunity cost of students into account, UAJ is much more efficient than conventional universities." (Muta, 1984 : 49)

The first students did not receive instruction until 1985, so Muta's estimates were based on predictions of future activities, rather than on experience of operation activities.

4.2.5 Comparative Cost Per Graduate

Distance education students are typically adults, with many extraneous demands on their time and energies. As a consequence drop-out rates are typically higher in distance education programmes. Because of the higher drop-out rate, the comparison of costs per graduate have generally proved less favourable for distance education programmes.

- Wagner, for example, concluded that the average recurrent cost per full-time undergraduate, at the UK Open University, was about half that at conventional universities;

- Horlock, in a later paper on the same university, concluded that the cost of an Arts graduate was about 61.5% of that for a conventional university: (Horlock, 1984)

- A study on Everyman's University (now the Open University of Israel) in 1982, concluded that the cost per graduate would be 45% of that for a long established university, and 43% of that for younger university (Melmed *et al,* 1982). However, unlike the studies of the UK Open University, this estimate was based on projections of future activities.

Muta, in his paper on the University of the Air in Japan, provides a useful analysis of comparative costs based on varying assumptions of graduation rates. He estimated the cost per graduate of the UAJ compared to that of departments of Humanities and Social Sciences at: (a) national universities; (b) public universities; (c) day programmes of private universities; and (d) evening programmes of private universities. Table 1, which has been derived from Muta's estimates, shows how the comparative cost varies with the projected graduation rate. As can be seen from Table 1, the comparative cost per graduate varies with the type of university taken as the basis of comparison, and with the assumed graduation rate.

TABLE 1:

ESTIMATED COMPARATIVE COST PER GRADUATE AT UAJ AS A PERCENTAGE OF COST AT OTHER UNIVERSITIES

	Assumed Graduation Rate at UAJ		
Compared to:-	**85%**	**65%**	**20%**
	%	%	%
National University	18–25	23–32	76–105
Public University	23–32	30–41	97–134
Private University			
– Day programmes	50–70	66–92	214–297
– Evening programmes	59–82	77–107	249–347

Source: Based on data in Muta (Muta, 1984 : 50).

Muta's analysis is useful in emphasising the importance of the graduation rate as a determinant of comparative cost-effectiveness. It is interesting in this connection to note Muta's conclusion that at a drop-out rate of 50% the cost per graduate would be equivalent to that for private day universities. In practice graduation rates vary quite widely between distance teaching universities. The rate at the UK Open University is about 57% of final registrants (Horlock, 1984); however this is almost certainly high by the standards of most open universities.

4.2.6 Conclusions

Bearing in mind the caveat regarding transfer of results between systems, the most one can conclude from these studies would seem to be that:

- other things being equal, the cost per student is likely to be lower in distance education, provided sufficient students are enrolled;
- the result may be influenced by non-teaching activities, such as the comparative levels of involvement in research, between the institutions being compared;
- the cost per equivalent undergraduate may be lower in distance education, but the result, and especially the degree of difference, depends on the type of education selected as the basis for comparison e.g. the results are typically more favourable to distance education when the basis of comparison is full-time, rather than part-time, conventional education;
- substantial savings may be possible with regard to capital expenditure on student accommodation;
- because the drop-out rate is often higher in distance education; the comparative cost advantage, if any, is likely to be lower per graduate, than per student.

It is usual also to make the point that because students in distance education programmes, unlike their counterparts in conventional education, do not need to leave their employment, the 'opportunity cost' is lower in distance teaching. However this advantage does not normally hold where the comparison is made with part-time courses; moreover it assumes that leisure has zero value.

4.3 Country background

4.3.1 Population and Per Capita Income

The four countries, in which these five education systems are located, together embrace some 77% of the total population of Asia. Two countries, China and India, together comprise more than 70% of the whole. The rate of population increase in China is 1.2% and, of the four countries, is highest in Indonesia at 2.2%. This is significantly below the average rate of population increase in eleven other Asian countries. In spite of this comparatively low rate of population increase, the scale of population creates a massive potential demand for education.

From a resource perspective, Asia is a highly varied region. Per-capita income in 1986 ranged from an estimated 150 US dollars in Bangladesh, to 17,580 in Brunei Darussalam. Even if one ignores the oil-rich states the range of income is still wide. The median per capita income for the region as a whole was 1,130 US dollars (in Turkey); each of the four countries with which this study is concerned has a per-capita income substantially below the median, as shown in Table 2.

TABLE 2:

POPULATION AND PER CAPITA INCOME (US DOLLARS)

Country	**Population (Millions)**	**Year**	**GNP Per Capita (Year 1985)**
China	1,031.9	(1982)	310
India	685.2	(1981)	250
Indonesia	147.5	(1980)	530
Thailand	44.8	(1980)	830

Source: (United Nations, 1988; Europa Yearbook, 1988)

4.3.2 Participation in Education

Each of these four countries, has a strong commitment to education. Participation in primary education in Indonesia, for example, is 98% of the age cohort seven to twelve years; gross enrolment at primary level in China, which includes children outside the specified age group of seven to eleven year olds, is 118%, and in Thailand is 97% (Unesco, 1988). These participation rates indicate that almost all children in these three countries attend primary school. The gross enrolment rate for India at 90% is somewhat lower, but still quite high by the standards of many other countries.

Gross enrolment at second level, for which the specified age of attendance varies somewhat between countries, ranges from 30% for Thailand to 39% for Indonesia. These rates are high by the standards of many other countries. Participation at third level, based on gross enrolment for the 20–24 year age group, varies widely; from 1.4% in China to a reported 22.5% in Thailand (Unesco, 1988). However, the figure for China excludes students of CRTVU, and in the case of Thailand excludes students at 'open admission' universities including STOU. (A recent figure for India is not available).

TABLE 3:

PERCENTAGE OF POPULATION HAVING ATTENDED SCHOOL

Country	**None**	**Primary**	**Secondary**	**Post-Secondary**
China	44.5	32.7	21.7	1.0
India	72.5	11.3	13.7	2.5
Indonesia	41.1	48.4	9.6	0.8
Thailand	20.5	69.7	6.8	2.9

Source: (Unesco, 1988)

In spite of the progress which these figures represent, there remains a considerable proportion of the population who have not had access to education, as can be seen from Table 3. India, for example, has the sixth highest rate of non-attendance at school among the populations of Asian countries. China at 44.5% is just above the median for countries in Asia. The percentage of the population as a whole having attended post-secondary education is small. The median figure for all Asian countries is only 3.4%; all four countries, with which this study is concerned, fall below this figure.

It is clear, from this data, that there is a substantive potential demand for higher education, among the adult population, in these four countries.

4.3.3 Government Allocation to Education

As can be seen from Table 4, each of the four countries allocates between 2.2% and 3.9% of Gross National Product to education. Government expenditure on education, as a percentage of total government expenditure, ranges from 8% in China, to 20% in Thailand.

TABLE 4:

EDUCATIONAL EXPENDITURE AS A PERCENTAGE
OF GNP AND TOTAL GOVERNMENT EXPENDITURE

Country	As % of GNP	As % of Total Govt.Exp.	Year
China	2.8	8.1	1983
India	3.0	9.6	1981
Indonesia	2.2	9.3	1981
Thailand	3.9	20.1	1982

Source: (Unesco, 1988)

On the basis of this analysis it seems reasonable to conclude that these four countries are each educationally disadvantaged, to a greater or lesser degree; and, having regard to other demands on governments in these countries, that the resources available to widen access to education are severely constrained. As a consequence the scope for substantial increases in expenditure on education must be severely limited.

4.3.4 Role of Distance Education

It will be clear that the aspiration towards increased educational provision, in these four countries, is coupled with severe constraints on government resources to support further expansion of the conventional system. The attention of educational policy-makers therefore has been directed to alternative, and potentially less costly, modes of education; of which distance teaching is one. In these, as in other countries, distance education is increasingly perceived as a primary means of responding to the demand for wider access to education.

In the Nineteen Seventies, interest in distance education was primarily focussed on redressing disparities in access to education, and to higher education in particular. This was the central objective of the first Open University, established in the United Kingdom, in 1969. The subsequent establishment of broadly similar Open Universities in the Federal Republic of Germany, the Netherlands, Spain, Thailand, Venezuela, Costa Rica, Israel, and other countries, reflected this commitment to widening access.

It was no accident perhaps that the establishment of these universities coincided with a generally positive attitude towards investment in education. This positive view was characteristic of the 1960–70s and as a consequence investment in education, and especially in higher education, increased in many countries. To some degree this positive attitude has weakened significantly as the 1980's have progressed, due in part to the severe constraints on resources for further investment. Governments faced on the one hand with increasing pressure to widen access to education, and on the other with very limited resources to meet these demands, are turning to distance education as a potentially less costly means of educational provision.

4.3.5 Distance Education in Asia

The commitment to distance education is especially strong in Asia. Open universities, or autonomous institutions making extensive use of communications technologies, have been established in at least nine countries: China, Hong Kong, India, Indonesia, Israel, Pakistan, Korea, Sri Lanka and Thailand; and dual mode universities provide distance education programmes in a number of countries including Bangladesh, China, India and, Malaysia. Three of the four countries, with which this study is concerned, have had experience of distance education and/or media-based teaching since 1960 or earlier.

4.3.6 China

In China, distance education for adults at tertiary level was introduced in the early 1960's, through courses provided by correspondence departments of conventional universities, and through independent institutions including radio and television universities.

As will be evident from preceding chapters, the major technology based programme is provided through the Central Radio and TV University (CRTVU) using a multi-media approach to teaching. The CRTVU now has 640,000 registered students and approximately half as many non-registered viewers. The system as a whole in decentralised, with 43 provincial television universities, of which Liao Ning Radio and Television University is one. It has some four hundred branch schools under the leadership of provincial universities, and more than 20,000 classes in industrial enterprises, commercial institutions and other units throughout the community (Selim, 1986).

Distance education is not used to any significant extent for education at primary or secondary level.

4.3.7 India

A correspondence programme for teachers, leading to a diploma, was introduced in India as early as 1955, but was subsequently discontinued. The first Arts degree was introduced by Delhi University in 1960 (Mullick, 1986). Correspondence teaching became more extensive in the following two decades; by 1982, thirty three universities had introduced correspondence based programmes. One review indicates that in 1971/72 some 40,000 students received education through correspondence courses, of which just over 30,000 were on under-graduate programmes; by 1982/83 the number of students had increased to almost 160,000, of which two thirds were enrolled in under-graduate programmes (ibid). By that time students on correspondence courses comprised some 5% of total enrolment in higher education.

In most universities the number of students enrolled for study through correspondence is a small part of total enrolment, typically ranging from less than 1% to just under 11% (at Delhi). At two universities however, NADU in the Southern Region, and Himachal Pradesh in the Northern Region, correspondence students comprised more than 20% and 40% respectively of total student enrolment (ibid). While problems of status and lack of adequate resources have been reported in various papers (Datt, 1988), this substantive enrolment in correspondence courses at tertiary level is further evidence of a strong demand for distance education.

An Open University at Andhra Pradesh was established in 1984. The university uses radio, and a network of study centres at 28 colleges throughout the State, to support its teaching programmes. Other substantive media-based programmes included the SITE (Satellite Instructional Television Experiment) project introduced in 1975, which provided programmes at primary level for a year.

IGNOU registered students for the first time in 1987.

4.3.8 Indonesia

In Indonesia a national programme was introduced in 1984 for primary school children. The programme was based on self-instructional materials, including printed texts, audio cassettes, slides and radio broadcasts. At second level, conventional Junior High Schools provide instruction as part of the Open Junior High School programme (Selim, 1986). Students are supervised by a tutor and follow the same curriculum as the regular high school. As in somewhat similar programmes in a number of African countries, the tutor does not teach but facilitates learning by organising, supporting and motivating students. Students attend at the regular high school one day each week for face-to-face instruction with teachers.

The Universities Terbuka was established in 1984.

4.3.9 Thailand

Radio has been extensively used for education in Thailand; programmes were first introduced for educational purposes on an experimental basis in 1960. In 1982 a Centre for Educational Technology was established to provide radio programmes for schools; the programmes are broadcast on the national education radio network and comprise some 20% of total output. Radio programmes are provided also at second level, however broadcasts are confined to English Language and educational guidance.

An extensive range of educational radio programmes is provided for adults; Kasetsart University, for example, operates a radio station, supported by commercial sponsorship, which broadcasts for seventeen hours each day (Chaya-Ngam, lam, 1986). A part of transmission time is allocated to extension programmes for farmers, which are also carried by twelve other provincial stations (ibid). Other media-based, or non-formal, programmes include broadcasts to special groups such as farmers, and programmes on health aimed at the general public. Several projects have been introduced to upgrade untrained teachers. A number of universities and third level colleges offer in-service education courses for teachers and other professions, through correspondence (ibid).

In 1980 Sukhothai Thammathirat, Thailand's Open University, registered students for the first time.

4.3.10 Conclusions

As can be seen from this brief review, each of these countries has had some experience of distance teaching and/or media-based education prior to the establishment of the five institutions with which this report is concerned. However experience of tertiary level distance teaching was extensive only in India, and to some degree in Thailand. As a consequence, the structures and operational procedures, appropriate to autonomous distance teaching universities had effectively to develope ab initio.

4.4 Source of Resources

4.4.1 Source of Funding

The source of funding is an important issue in distance education programmes, for two reasons. First, the source can determine the level of funding, and where this is inadequate to support essential activities, the quality of programmes is likely to be impaired. It is not uncommon to find that substantial funds are provided at the initiation of a distance education project, from government or overseas aid, often for investment in capital-intensive production facilities such as television and radio studios. However after this initial period has ended, funding can be difficult to obtain. Unfortunately this is typically the stage at which student numbers and hence variable costs increase, often quite rapidly.

In this situation one option is to increase student fees. However this may be politically undesirable, and is likely to prove counter-productive, by reducing student numbers. A second option is to reduce expenditure. At this stage of development, it is likely that decisions on capital investment will have been taken if indeed resources are not already irrevocably committed. Cuts in expenditure therefore are likely to fall hardest on variable costs which, being directly related to students numbers, may be increasing quite rapidly. The activities most likely to suffer, in this situation, are course materials for distribution to students, assignment marking, student counselling, face-to-face tutorials at local study centres, and weekend and summer schools. The effect of cutting back on these activities will have a detrimental effect on the quality of teaching.

A second reason why the source of funding is important, concerns the issue of who pays for distance education. A central objective of distance education in most countries is to democratise access to education, by extending provision to groups which are educationally or economically disadvantaged. This objective is put at risk where programmes have to rely on student fees to support essential activities. The greater the reliance on fees, the less likely it is that economically disadvantaged students can afford to participate.

Nevertheless where government resources to support the expansion of distance education are not forthcoming, a policy of funding through student fees may be inevitable. While the appropriate strategy needs to be considered in the light of particular circumstances, in general, a policy of charging fees which cover the variable cost of essential student support services is preferable, to one in which fees in general are low, but student support services are grossly inadequate. However if a policy of this kind is to be equitable, and is not to reinforce, rather than redress, disadvantage, it may be necessary to provide a system of students grants or scholarships, or at a minimum to waive the payment of fees, for economically disadvantaged students.

4.4.2 Funding for Five Institutions

Funding to support the activities of these five institutions comes principally from three sources: government; student fees and other user income; and external aid. Government includes central, regional and local government, and public authorities. Other user income includes sales of course materials and fees for special training courses, research, consultancy and the like. External aid includes donations and assistance from foreign governments and international agencies; funding of this kind is usually provided in the form of payment for advice and consultancy, or for support for the training and further education of university staff.

4.4.3 Government Support

As can be seen from Table 5, the source of funding for these five distance education systems varies quite significantly. In two cases, LNRTVU and CIET, government provides practically the entire funding. In the case of IGNOU, government support accounted for 93% in 1987/88, and student user income accounted for only 7%; however this substantial funding may include initial capital investment incurred in the earlier years of a programme.

In UT, on the other hand, state funding provided for a little over half of total income (excluding foreign aid).

TABLE 5:

SOURCE OF FUNDING

Source of Funding	**UT** **%**	**IGNOU** **%**	**LNRTVU** **%**	**CIET** **%**
Government Support	52.7	93.1	100.0	100.0
Student/User Income	47.3	6.9	0.0	0.0
Other (Excluding Foreign Aid)	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0
Year	1987	1987–88	1987	1988

ble data is not available for STOU, but it is understood rnment support in 1985 accounted for 18.3% of total Srisa-an, Wichit, 1986). Having regard to this relatively ortion of funds coming from government in the case of is interesting to see how this proportion has changed period 1981–85, from 32% in 1980, to 18% in 1985. ine is essentially due to the rapid expansion of STOU and related expenditure. As can be seen from Table 6, to STOU increased at a somewhat higher rate than the ducation Budget as a whole. However the increase in ent funding was dwarfed by the rate of increase in other university revenues. This data reaffirms the heavy reliance of STOU on student fees and user income.

TABLE 6:

STOU FUNDING 1981–1985: COMPARATIVE AVERAGE ANNUAL INCREASE

Sector	**Average Annual Increase** **%**
Total Higher Education Budget	7.8
Budget Allocated to STOU	9.8
Other STOU Revenue	30.2

Source: Derived from data in (Srisa-an, Wichit, 1986)

The range of government support therefore is very wide, ranging from about one fifth of institutional expenditure, to total support.

The problem of funding is likely to become a particularly difficult in UT. As can be seen from Table 5, fees and user income constituted almost half of the university's income in 1987. The decline in new enrolments, to 7,600 in 1987, and the increase in 'passive' students who are unlikely to re-register, are likely to pose serious problems for the financial viability of the university's operations. As a consequence the university is likely to face the difficult choices outlined in Section 5.4.1. The reluctance of UT students to purchase course materials, suggests that the combined effect of fees and course materials costs are too high for students, or that the service and facilities provided are not commensurate, in students' perceptions, with the expenditure required.

4.4.4 Other Support

Universitas Terbuka received additional funds and support from a number of external agencies, including CIDA, the World Bank, IDRC Canada, and USAID. The total value of these contributions was 4,539,000 US Dollars. The period over which this aid was provided varied from one to three years. The maximun contribution in any one year is estimated to be about 1.75m US dollars, which represents about one quarter of the income from government and student fees in 1987. However this external aid was not received in monetary form, but as technical assistance for consultants, scholarships and some equipment.

IGNOU has received aid from the Overseas Development Administration to the value of some 395,000 US Dollars. However details of the period over which this aid is being provided are not known. STOU in the early years received an unconditional grant of some 7 million US Dollars from the Japanese government for the Educational Broadcasting and Production Centre. This represents about one third of the capital cost of development for phases 1 and 2 of the University's programme.

4.4.5 Government Funding Per Student

From the information provided it is possible to estimate the level of government funding per student, in three of the systems. The estimate is a somewhat crude indicator of support, for three reasons. First, it is based on an estimate of student numbers provided by each of the four universities. As will be evident from the discussion in Chapter 2, defining what constitutes a 'student' in a distance education programme is somewhat problematic. Second, the estimate relates only to direct funding; indirect support, and the 'opportunity' costs of support in kind from other government-funded institutions, is not included. This is a significant omission, for example, in the case of LNRTVU, in that government funding of the Central RTVU is not included. (The budget for CRTVU in 1987 was some 2.3m US dollars. If this is treated as an overhead cost on the regional universities, and allocated to them on a per capita student basis, the operational costs of PRTVU's would be increased by about 5% per annum).

Third, the distribution of government support between capital and recurrent expenditure is not known, and this could be an important factor in influencing the level of support over time. This may be particularly significant at IGNOU, given the early stage of development.

Provided these factors are kept clearly in mind it may be of interest to note the figures. These are, in US dollars for the years indicated in Table 5: UT 56; LNRTVU 64; and IGNOU 85 (or 113 if credit students only are counted). Since student numbers are not available for CIET, it is not possible to provide an estimate.

Comparable data on STOU is not available. However it has been possible to compile an estimate based on the gross level of government support, and on enrolment data for the years 1981 to 1985. Since the rate of student drop-out from year to year is unknown, estimates have been derived for a range of student retention rates from 60% to 80%. Table 7 sets outs the estimates in respect of 1981, 1985, and the average for the period 1981–85 as a whole. It will be seen, for example, that at an 80% retention rate, government support would be equal to almost 13 US dollars per student in 1981; and just under ten dollars in 1985; or an average of 12.14 dollars each year over the five year period.

This estimate of government support per student, of some 12–19 US dollars, is substantially below the estimate for the other three universities, and reflects the high reliance on fee/user income at STOU.

TABLE 7:

STOU: ESTIMATED GOVERNMENT FUNDING PER STUDENT
1981–1985
(US Dollars)

Year	Assumed	Retention Rate Year	on Year
	80%	70%	60%
1981	12.83	13.66	15.69
1985	9.58	12.06	18.29
Average 1981–85	12.14	14.08	18.82

4.4.6 Student Fees
It may be useful to consider briefly the incidence of fees on individual students at STOU, since user/fee income is proportionally high at that university. Student fees are composed of a once-off admission fee of 150 Baht, university fees per semester of 150 Baht, tuition fees per course of 200 Baht, and education materials per course of 200 Baht.

A student taking twelve courses towards a Bachelors degree would have to pay fees of just over 224 US dollars, for the degree as a whole. It is reported that the average monthly income of a student is 130 US dollars (Srisa-an, Wichit, 1986); so expenditure on tuition fees and course materials represents somewhat less than one month's salary each year for an average student taking the programme. If the student failed to pass examinations, and had to repeat courses, or decided to take the programme over three, rather than two years, the total fee would be more. For example, if the student took the twelve courses over three years (and passed all examinations) the additional cost would be about 10 US dollars.

This level of fees, as a percentage of student income, is not excessive by comparison with at least some tertiary distance teaching institutions, even in developed countries. However, in the absence of more detailed information on the socio-economic mix of STOU students, relative to the population as a whole, it is not possible to say whether the level of fees is a disincentive to participation by economically disadvantaged students. Fees in LNRTVU, which are paid by 'self learners' only, range from 48 US dollars per years, for Chinese Language and Literature, to 134 US dollars, for Science. Some provincial Radio and Television Universities do not charge students, and in many cases the work units pay the fee, and may in addition pay the student a salary.

Comparable data on fee levels for students at IGNOU and UT are not available for comparison. Because of the nature of its institution's activities, payment of fees does not arise at CIET.

4.5 Staffing

4.5.1 Resource Inputs
Having considered the source of funds, it is now appropriate to consider some of the more important resource inputs to these five systems. The range of inputs is both wide and varied; they include instructional materials, equipment, buildings and other physical facilities; and the course writers, tutors, administrators, communications specialists, and other staff which support, directly or indirectly, the activities of the five institutions; and, most important of all, the students.

For the reasons already outlined, the data available will not support a full analysis of all the resource inputs to these five systems; and where data is available, it will sometimes support an analysis only of physical inputs, and not of their monetary value. However this is not an exceptional situation in distance education programmes; and it is hoped that a review of the available data may at least serve to inform discussion of the wider analysis, in other chapters of this report.

It is proposed to consider first the critical resource factor of staffing, drawing on data relating to staff numbers, and the ratio of different categories of staff, one to the other. The analysis is based, in the main, on data provided by the five institutions. The available data on recurrent expenditure will then be reviewed; and finally resource aspects of capital inputs, and in particular those relating to communications technology will be considered.

The mix of resource inputs to distance education programmes generally tens to be somewhat different to conventional education. First, direct (i.e. budgetary) expenditure per capita is usually lower. Second, external facilities, and access to their services they provide, are often made available free, or on a marginal cost basis. Third, the range of activities and skills are typically wider than those found in conventional education.

The extent of the resources required, their quality, and the mix of one with the other, varies from one system to another. The particular configuration in any one system depends primarily on the objectives being pursued, on the institutional structure and operational procedures of the system, and on the characteristics and learning needs of the student body.

4.5.2 Staff in Tertiary Education
Staff are the primary resource in universities. Whatever the mode of education adopted, the quality of teaching is critically dependent on the calibre of staff employed, and this is especially true of tertiary education. Staff are important also in quantitative terms; since the number of students is related to the availability of staff. In conventional education, teaching methods, and hence productivity, has remained essentially unchanged over decades, if not indeed centuries; and the relationship between staff and student numbers is fixed within relatively narrow parameters. An increase in student numbers, requires a broadly proportionate increase in staff.

Distance education has advantages in this connection. First, because much of students' learning is self directed, fewer teachers are required, and the student-teacher ratio can be higher than for comparable courses in conventional education. Second, because the mode of learning is flexible with regard to time and space, some academic staff can be employed on a marginal (part-time) basis.

4.5.3 Whole-time Staff
In practice, the number of whole-time staff employed in distance teaching institutions varies quite widely. Some 'dual-mode' institutions employ as few as two or three whole-time staff to

administer programmes, and the academic staff required for course development and teaching are drawn-in on a part-time basis. Open Universities however typically employ substantial numbers of whole-time staff. The UK Open University employs some 2,700 whole-time staff; however this is rather exceptional, the German Fernuniversitat and Netherlands Open Universitet, for example, employ some 600 and 350 whole-time staff respectively.

The number of whole-time staff employed in these five Asian institutions is shown in Table 8. As can be seen, three of the institutions are large in scale, employing more than 1,000 staff. Indeed the figures in Table 8 understate the scale of distance teaching in China and India, because, as indicated above, LNRTVU is only one of forty regional universities; and IGNOU is still at a relatively early stage of development. Clearly the designation of 'large-scale' is warranted in the case of at least three, and potentially four, of these institutions.

TABLE 8:

WHOLE-TIME STAFF NUMBERS

Institution	**Total**
STOU	1,756
Universitas Terbuka	1,316
Lao Ning RTVU	1,040
IGNOU	610
CIET	119

The Central Institute of Educational Technology (CIET) is exceptional among these five institutions in having only 119 staff. However, as noted earlier, the objectives and role of CIET is different from that of the other four institutions; and so a substantial difference in the number of whole-time staff employed is not surprising.

4.5.4 Ratio Professional to Support Staff
Given the wide range of professional and occupational skills typically employed in open universities, establishing a definitive dichotomy between the categories 'professional' and 'support' staff is somewhat problematic. For the purpose of this study, whole-time professional staff were defined to include course writers, editors, instructional designers, audio and video producers, tutors, teachers, managers of study centres, regional staff, student counsellors, and the like. Support staff were defined to include administrative, secretarial and clerical staff, printers, drivers and security personnel. It is believed that the guidance these indications provide to experienced distance educators is sufficient to ensure that the classification is consistent across the five systems.

As can be seen from Table 9, the ratio of whole-time support staff to whole-time professional staff in three of the five institutions are approximately: STOU 5:1, UT 4:1 and IGNOU 2:1. The marked difference in the ratio between the three open universities on the one hand, and LNRTVU and CIET on the other, suggests that many of the support staff are involved in production and administrative activities related to distance teaching, such as printing, packing and posting of course materials. The ratio is particularly high in the case of STOU, which probably reflects the university's involvement in the production and printing of course materials, and the operation of seminar and residential facilities on site.

TABLE 9:

WHOLE-TIME STAFF: RATIO SUPPORT TO PROFESSIONAL STAFF

Institution	**WT Prof. (a)**	**WT Support (b)**	**Ratio (b/a)**
STOU	269	1,437	5:1
Universitas Terbuka	282	1,034	4:1
IGNOU	194	416	2:1
Lao Ning RTVU	762	278	1:3
CIET	91	28	1:3

The ratios of support to professional staff for the three 'open universities' are higher than those for open universities in more highly developed countries. The reasons for the difference are not known; however it may be due to the extensive use of computers for administration in open universities in more developed countries, and to the lower real cost of support, relative to professional staff, in these three countries.

4.5.5 Ratio Part-time to Whole-time Staff
It is common practice in distance education institutions to employ substantial numbers of part-time staff as tutors, student counsellors, and in some cases as course writers and editors. Employment of part-time staff has advantages from a resource perspective because, other things being equal, their employment reduces unit costs. There are several reasons why this is so: part-time staff do not have to be provided with offices, and so do not generate costs in respect of rent, maintenance and cleaning; they do not usually receive annual increments in salary, and often earn less per hour than their full-time counterparts; and they can more easily be released when the programmes for which they are employed are no longer in demand.

However good distance teaching requires that an appropriate balance be maintained between whole-time and part-time staff. Academics drawn-in from conventional education seldom have the experience, and sometimes lack the interest, required for writing good distance teaching texts; close liaison with whole-time staff, experienced in the writing and editing of texts and sensitive to the needs of students learning at a distance, is necessary if the texts are to prove successful as teaching media. Similarly, the work of part-time staff employed as tutors needs to be monitored systematically if the assessment of students' assignments is to be consistent between different tutors, and to ensure that tutors provide effective support to students.

Even where these conditions apply, a policy of employing part-time staff can only be effective, where individuals with the required expertise are available, in the numbers required, for employment on a part-time basis. The engagement of part-time staff with inadequate qualifications and experience, to act as tutors at tertiary level, is likely to lead to poor quality teaching, and increased levels of student drop-out. Similarly, while the appropriate ratio of whole-time to part-time staff will vary from one system to another, an excessively high ratio is likely to lead to lower quality teaching and administrative support.

As can be seen from Table 10, the ratios of part-time to whole-time staff for the top three institutions are 7:1 for STOU; 12:1 for UT; and 24:1 for IGNOU.

TABLE 10:

RATIO PART-TIME TO WHOLE-TIME PROFESSIONAL STAFF

Institution	Part-time	Whole-time	Ratio
IGNOU	4,690	194	24:1
Universitas Terbuka	3,498	282	12:1
STOU	2,000	269	7:1
Lao Ning RTVU	370	762	1:2
CIET	4	91	1:23

These ratios are high by the standards of other open universities, for which data is available. The ratios for three Open Universities in Europe, for example, are 2:1, 3:1 and 6:1, and for the Open University in Israel 3:1. The ratios are all the more surprising for those institutions, such as UT and STOU, which do not provide substantial student support services. This is an area in which further research would be useful, from the perspective of both cost-effectiveness and quality of teaching. Data on the characteristics of part-time staff, and on procedures for their induction, training and management by whole-time staff, would be useful in this connection.

4.6 Recurrent Costs

4.6.1 Recurrent Costs

Recurrent costs are those incurred for goods and services consumed in the course of a budget year, and which must be regularly replaced. The classification of items of expenditure as recurrent is based on convention, and it is not difficult to find examples of items, such as certain kinds of office supplies, which have characteristics akin to capital goods, but which by common convention are classified as recurrent. For most major items however the distinction is clear.

Capital costs relate to items with a life beyond the current budgetary period, such as land, buildings, and equipment; capital costs relating to these five systems are considered in sections 5.7 and 5.8.

4.6.2 Recurrent Costs of Staff

Staff salaries are the most obvious, and often the biggest single, item of recurrent cost. Institutions were asked to provide data on the amount paid in salaries and other payments to whole-time and part-time staff. Salaries were defined to include gross payments to staff, before deductions for tax, superannuation, or other, items, and to include additional pay-related expenditure. Other payments were defined to include items such as travel and subsistence expenses, grants, bonuses or subsidies paid to staff.

The percentage distribution of salaries and other payments to whole-time and part-time staff, based on data provided by the institutions, is show in Table 11.

TABLE 11:

PERCENTAGE DISTRIBUTION OF SALARIES AND OTHER PAYMENTS TO WHOLE-TIME AND PART-TIME STAFF.

Category	STOU	UT	IGNOU	LNRTVU	CIET
Whole-time Staff	96.6	78.6	75.8	93.9	89.1
Part-time Staff	3.4	21.4	24.2	6.1	10.9
Total	100.0	100.0	100.0	100.0	100.0

The expenditure on part-time staff is proportionately highest in IGNOU at 24.2%, and in UT at 21.4%, reflecting the high ratio of part-time to whole-time staff employed, 24 : 1 and 12 : 1 respectively (as outlined in Section 5, above).

Although STOU has a quite substantial part-time to whole-time staff ratio of 7 : 1, expenditure on part-time staff is only 3.4% of all staff payments. It is not clear whether this is due to the 2,000 part-time staff being each employed on average for a small amount of time, or whether the rates paid to part-time staff are significantly below those of whole-time staff. (No data on payments other than salaries were returned in respect of part-time staff employed at STOU. However if the comparison is based on salaries only, ignoring other payments to whole-time staff, the percentage paid to part-time staff is still only 8.3%)

Ancillary costs, such as travel, subsistence, and housing provision, were recorded as major items in total staff payments, as shown in Table 12.

TABLE 12:

PERCENTAGE DISTRIBUTION OF EXPENDITURE BETWEEN SALARIES AND OTHER PAYMENTS TO WHOLE-TIME AND PART-TIME STAFF:

Category	STOU	IGNOU	LNRTVU	CIEF
Salaries	41.1	81.0	14.5	95.8
All Other Payments	58.9	19.0	85.5	4.2
	100.0	100.0	100.0	100.0

The reasons why payments other than salaries are proportionately so high is not clear. Subsequent enquiries of respondents indicate that at STOU, travel and subsistence costs of staff visiting examination and study centres at regions throughout the country is a significant component of ancillary costs. This is likely to be a significant factor also at IGNOU, which manages a network of regional centres. Subsidised housing for academic staff in Delhi is also a substantial component of costs. The reasons for the small proportion of payments to staff which salary represents in LNRTVU, is not clear. UT provided no data in respect of 'other payments' and has been excluded from this analysis. There are two points regarding the cost structure of emoluments to staff, on which it would be useful to have more detailed data. First, the small proportion of salaries and other payment to part-time staff at STOU; and second, the high proportion of emoluments to staff, which 'other payments' represent, at both LNRTVU and STOU.

4.6.3 Non-Salary Recurrent Costs

Institutions were asked to provide information on other (non-salary) recurrent costs, under eight headings. The responses have been summarised in Table 13.

TABLE 13:

OTHER (NON-SALARY) RECURRENT EXPENDITURE:
US Dollars (000)

Activity	STOU	UT	IGNOU	LNRTVU	CIET
Course Materials	1,363.9	1,070.3	340.8	211.5	30.3
External Access	1,089.6	0.0	0.0	216.9	0.0
Admin Phone, Post	726.4	574.7	449.8	15.7	6.0
Other Non-salary	372.3	25.6	588.2	0.0	0.0
Total	3,552.2	1,670.6	1,378.8	444.1	36.3

4.6.4 Distribution of Recurrent Costs

Table 14 sets out the proportionate distribution of recurrent costs across the major areas of expenditure. Salaries and payments to staff at STOU seem inordinately high by comparison with the other two 'open universities'.

TABLE 14:

PERCENTAGE DISTRIBUTION OF RECURRENT EXPENDITURE

Activity	**STOU** %	**UT** %	**IGNOU** %	**LNRTVU** %	**CIET** %
Staff	70.1	52.7	42.0	85.2	37.7
Course Materials	11.5	28.0	14.3	7.1	52.0
External Access	9.2	0.0	0.0	7.2	0.0
Admin. Phone, Post	6.1	18.4	18.9	0.5	10.3
Other Non-salary	3.1	0.8	24.7	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0

As can be seen staff costs, as a proportion of the whole, are highest in LNRTVU, reflecting the substantial involvement in face-to-face teaching. They are proportionately lower at the three open universities, being just over 70% at STOU; and substantially lower at UT and IGNOU.

4.6.5 Recurrent Cost of Course Materials

Recurrent costs of course materials include the buying-in of texts or other course materials, and of paper, blank tapes and other raw materials for in-house production, together with payments for external production. Expenditure under this heading is proportionately highest at CIET, not surprising perhaps having regard to that institution's role in the development of course materials. It is lowest at LNRTVU, and once again this is what one might expect given the emphasis on face-to-face teaching.

Expenditure on course materials as a percentage of all recurrent expenditure, in the three open universities, ranges from 11% for STOU, through 14% for IGNOU, to 28% at UT. Having regard to the reservations expressed in preceding chapters of this report, it might be worth considering whether the balance of resource allocation at UT is too strongly towards course materials production, especially in view of the reported low sales of course texts to students.

4.6.6 Access to External Facilities

Fees for access to external facilities include charges for radio or television transmission, and to external institutions used as regional or local study centres.

At STOU this represents about 9% of recurrent expenditure and relates mainly to payment for television time. Other external fees include payments for the rental of halls for examinations, which it is estimated to cost STOU about 17,000 US dollars, and fees for the directors of eighty regional centres which costs about 71,000 US dollars per year.

Two of the open universities have free access to valuable facilities. UT has access to private and local radio stations at no charge, and in addition, universities and schools accommodate UT regional centres at no cost. IGNOU has not as yet used radio or television, and so payment of fees do not arise, nor does the university pay for access to study centres. It is clear that the terms on which institutions have access to external facilities are an important factor in overall recurrent costs.

4.6.7 Other Recurrent Costs

Not a great deal needs to be said about administration and other recurrent costs, except to note that the substantial sum under the heading of 'other non-salary' expenditure of IGNOU represents the costs of rent for university offices, and charges for advertisements.

4.7 Capital Resources: Accommodation

4.7.1 Capital Costs

As indicated in Section 6.1 above, capital items are those which have a life beyond the budgetary period in which the expenditure to provide the facilities, is incurred. In the context of this study the two major items of capital cost are accommodation and equipment. This section will deal with accommodation.

4.7.2 Accommodation

Having regard to the method of data collection, outlined in Section 1 above, it was thought that asking respondents to provide data on the value of accommodation would introduce unnecessary complexity, and a potential risk of inaccuracy. It was decided therefore to collect data on the basis of physical units, and to convert this to a common unit of physical measurement. Institutions therefore were asked to provide information on the area of space or accommodation used for various activities.

4.7.3 Accommodation in Own Institution

Before considering the data on accommodation it may be useful to present a brief overview of the development or character of the accommodation occupied by each of these institutions.

- STOU began operations in the Office of the National Education Commission in 1979, and occupied temporary offices in ten locations, before the University moved to the present campus in 1984; the final section was located on campus in 1986. Construction work on the present campus commenced in October 1982, with a first phase investment of some 17 millon US dollars; construction of the second phase, representing an investment of some 7 million US dollars, commenced in February 1986. The campus now comprises a high quality, integrated facility, with accommodation comprising some 45–50,000 square metres.
- UT also began operations in temporary premises before moving the first of its departments to a permanent location. The University's accommodation in 1987 comprised some 12,300 square metres, embracing offices, library, printing facility, stores, an audio and video studio, and temporary Rector's house while his house is being built and expected to be completed in 1989.
- IGNOU also began operations in temporary, and dispersed office accommodation; at the time of the survey occupying accommodation at eight sites. It has now acquired a site of some twelve hectares at Delhi, as the future location for the campus. Current accommodation includes rented television and audio studios, and 50 residential flats at Delhi.
- LNRTVU accommodation includes offices, classrooms and laboratories, a library, and an audio and video studio.
- CIET is located at the National Council for Educational Research and Training in New Delhi. Almost half of the total accommodation of some 9,000 square metres is allocated to audio and video studios.

It will be clear, from this brief review, that in the case of the three open universities the physical facilities occupied by these institutions have been subject to rapid change and expansion. Each of the three open universities commenced operations in temporary and dispersed locations, and the accommodation expanded rapidly over the initial years of development.

The data discussed below therefore represents a single frame in a continually evolving picture, and this should be kept in mind in considering the analysis. Nevertheless it is possible to discern some common characteristics, and dissimilarities, which may be of interest.

4.7.4 Distribution of Accommodation by Activity
The data on total accommodation within the institution is shown in Table 15.

TABLE 15:

ACCOMMODATION IN OWN INSTITUTION: SQ.METRES ('00)

	STOU	**UT**	**IGNOU**	**LNRTVU**	**CIET**
Accommodation	434.9	122.4	122.6	1,455.5	93.6

The allocation of accommodation to three major activities is summarised in Table 16.

TABLE 16:

PERCENTAGE DISTRIBUTION OF ACCOMMODATION BY ACTIVITY

Category	**STOU** %	**UT** %	**IGNOU** %	**LNRTVU** %	**CIET** %
Offices	28.4	38.4	37.9	44.4	16.6
Teaching	12.6	0.0	3.8	31.3	0.0
Course Production	38.8	60.6	18.2	0.7	43.0
Other	20.3	1.0	40.2	23.6	40.4
Total	100.0	100.0	100.0	100.0	100.0

Office space at LNRTVU is almost 45% of the total; and at the three open universities is 38% at UT and IGNOU, and 28% at STOU. Office accommodation at UT includes the library area.

Teaching accommodation includes classrooms, lecture theatres, laboratories and libraries. However in the case of STOU and IGNOU the latter would typically be used primarily by university staff, e.g. in course preparation, rather than by students, therefore constituting an indirect, rather than a direct, use for teaching. Not surprisingly, space for teaching is highest at LNRTVU, being 31%.

Production space embraces audio, video, radio and television studios, printing and text production workshops, and stores. Production space, as a proportion of total space, is subject to the widest variation; it ranges from 1% at LNRTVU, to 61% at UT.

The category 'other' includes ancillary space, and special accommodation such as a seminar hall and training building at STOU, and residential flats and faculty hostels at IGNOU.

4.7.5 Accommodation Per Student
Wagner's study of the UK Open University, discussed in Section 2 above, showed that open universities could be capital saving by reducing significantly the accommodation required per student. Data on area per student in conventional universities in these five countries is not available as a basis of comparison. However it is understood that a conservative 'norm' for accommodation space in developed countries is of the order of 10–12 square metres per student.

Table 17 shows the square metres of accommodation per student, in four of the institutions, (as CIET has no students it is not possible to compile an estimate). The figures relate to 'teaching' accommodation as defined above, and to 'total' accommodation.

TABLE 17:

'OWN' ACCOMMODATION PER STUDENT IN SQ.METRES

Category	**STOU**	**UT**	**IGNOU**	**LNRTVU**
Teaching Accommodation	0.036	0.000	0.013	1.145
Total Accommodation	0.286	0.178	0.341	3.659

As can be seen the accommodation per student for each of the three open universities is low, being at worst about 3% of the norm for conventional universities referred to above. This indicator is crude, for the reasons outlined in 5.4.5 above. Nevertheless the results of this analysis serve to show clearly the potential of distance education in reducing the accommodation, and hence the direct capital investment, required to support substantial student numbers.

4.7.6 Accommodation in Other Institutions
In addition to data on accommodation in their own institutions, respondents were asked to provide information on space and facilities made available at no charge in other institutions. No data was available on the latter; however some general information on access to accommodation facilities to other institutions was provided. This may be summarised as follows:

- STOU: External facilities are used at some eighty centres throughout Thailand for examinations, and tutorial classes. Examinations are held four times each year, each centre may provide up to 25 rooms for each examination. Examinations and tutorials take place on Saturdays and Sundays, when the facilities would not normally be used for other activities.
- UT does not provide laboratory or counselling sessions for students, however two four-hour tutorials are held for each of some 28 courses. UT has free access to 32 regional centres. These are located in universities and schools, which provide rooms for tutorials and offices for regional administration of the University's courses.
- IGNOU has access to eleven regional centres, and 110 study centres in educational institutions in various regions of India. Accommodation for IGNOU activities at these centres is provided free.
- LNRTVU: Access to accommodation in other institutions is not required.

It will be evident that the three open universities rely on other institutions to provide access to accommodation for tutorials, examinations and regional administration. Data which would allow a value to be placed on this access is not available. However the accommodation would seem to by provided, for the most part, at times of low, or no, alternative demand; for example in the case of STOU on Saturdays and Sundays. Since this represents use on a marginal basis, at times when the accommodation has no alternative use, the opportunity cost can be regarded as effectively zero. STOU appears to be unusual in making a per-capita payment of 3 Baht (about 12 US cents) to regional authorities in respect of this use.

4.8 Capital Resources: Equipment

4.8.1 Cost of Equipment

The second major item of capital cost, equipment, is dealt with in this section.

Having regard to the range of equipment used in these institutions, and to the method of data collection, it was thought preferable to ask respondents to provide information on the purchase price of major items of equipment. (It will be evident that items of equipment have been purchased in different years. However data which would allow prices to be adjusted to a common base, in line with inflation, or to take account of the contrary declining cost of technology, were not available; and so these refinements have been ignored.) Each institution was asked to provide data on the value of equipment in its own institution at the time of purchase, and to indicate the extent to which this equipment was shared with other users. None of the institutions indicated that the equipment was shared; and so the assumption has been made that it is used exclusively for distance education purposes.

As can be seen from Table 18, the stated value of equipment owned by the institutions ranges from just over half a million US dollars at UT, to more than 14 million US dollars at STOU

TABLE 18:

PURCHASE VALUE OF EQUIPMENT IN OWN INSTITUTION: US Dollars (000)

Category	**STOU**	**UT**	**IGNOU**	**LNRTVU**	**CIET**
Total	14,341.8	506.8	1,821.4	3,131.6	1,440.0

The distribution of the purchase value of equipment to three major activities is summarised in Table 19.

TABLE 19:

PURCHASE VALUE OF EQUIPMENT IN OWN INSTITUTION BY ACTIVITY: US Dollars (000)

Category	**STOU**	**UT**	**IGNOU**	**LNRTVU**	**CIET**
Administration	28.2	28.2	65.4	12.1	0.0
A/V Production	56.3	23.7	15.1	40.3	92.4
Print Production	11.3	33.5	0.0	0.0	0.0
Teaching	0.0	0.0	8.0	30.3	0.0
Other	4.2	14.5	11.6	17.3	7.6
	100.0	100.0	100.0	100.0	100.0

Equipment for administration includes computers. The high proportion which equipment for administration represents at IGNOU may reflect the early stage of development; when the University becomes involved in the production of programmes for television and radio, investment in audio-visual equipment may become a greater part of the whole, and equipment for administration proportionately less significant.

In spite of the modest use of television or video at IGNOU and UT the value of equipment for audio and video production is a substantial part of total equipment at the three open universities. It ranges from 15% at IGNOU, where only video tapes have been used to date, through 24% at UT, where television is used for only some 10 hours per year, to 56% at STOU. The value is 37% at LNRTVU, and 92% at CIET (however the high percentage in this last case may be due in part to the omission of entries under other heads such as furniture).

As might be expected the value of equipment for teaching and laboratory sessions is highest at LNRTVU. The category 'other' includes the purchase price of furniture, vehicles, and expenditure not assigned elsewhere by respondents.

4.8.2 Annualised Cost of Equipment in Institutions

As noted in Section 6.1, capital costs are those incurred in respect of items of expenditure which have a life beyond the current budgetary period. Because capital costs are incurred at a particular point in time, but the buildings or equipment are used for many years, it is normal practice to amortise the value over time by applying a depreciation charge to each year. The rate used to depreciate capital goods depends on their anticipated useful life. In addition it is usual to apply an interest charge to reflect the opportunities for alternative investment, which must be foregone by investing in the particular capital project. In this way it is possible to derive an imputed rent for capital goods and facilities.

The imputed rent, or annualised cost, depends on the period over which the equipment is to amortised, and the rate of interest chosen. The longer the period, and the lower the rate of interest chosen, the lower the annual imputed rent. For example in the case of STOU, applying a ten year amortisation period and an interest rate of 15%, the annual imputed rent would be about 2.9 million US dollars; with a fifteen year amortisation period and zero interest, the imputed rent would be 0.96 million. For the purpose of this study an amortisation period of 10 years has been chosen, and a rate of interest of 7.5%. Table 20 shows the annualised value of the equipment on this basis.

TABLE 20:

ANNUALISED VALUE OF EQUIPMENT IN OWN INSTITUTION: US Dollars (000)

Category	**STOU**	**UT**	**IGNOU**	**LNRTVU**	**CIET**
Annualised Value	2,093.9	74.0	265.9	457.2	211.0

The estimated annualised value of equipment, as a percentage of staff and other stated recurrent costs, is equal to about 18% at STOU, 15% at LNRTVU, 11% at IGNOU and 2% at UT. CIET is exceptional in that the estimate is equal to some three and a half times recurrent costs, which confirms the substantial value of equipment at CIET. At two of the open universities, STOU and IGNOU, it is evident that substantial resources are embodied in equipment. However among the three open universities only STOU can be seen to have substantial resources involved in equipment for communications through television and radio.

4.8.3 Access to Equipment in Other Institutions

Free access to facilities in other institutions relates mainly to broacasting networks.

- STOU broadcasts about 1,100 television programmes each year, and about 7,800 radio programmes (Chaya-Ngam, Iam, 1986). However it is reported that the University pays about 1 million US dollars for access to these networks.
- UT has free access to television and radio transmission facilities. About ten hours of television programme are transmitted each year, through the central television station at Jakarta, and are then relayed by local stations throughout Indonesia. Radio is used for about 1,000

hours each year. Thirty nine stations regularly broadcast UT programmes. For an initial two years UT had access to SISDIKSAT, a satellite facility covering areas in the east of Indonesia. However this access was available only until 1986.

- IGNOU has not as yet used radio or television, and is reported to have no access to equipment in other institutions.
- CIET has access to satellite transmission time at no cost. The transmissions are made in the mornings, when the alternative demand is low.

4.9 Communications Technologies: Resource Factors

4.9.1 Technologies in Distance Education

This study is centred on institutions using communications technologies in distance education. Communications, however, is only one of the purposes for which technology is used; computer technology, for example, is now extensively used in the management and administration of distance teaching programmes. Nevertheless it is the use of technology for distance teaching which has been central to research on educational and cost effectiveness in distance education and with which this study is concerned.

There is broad agreement among distance educators regarding the advantages of technology-based media in distance teaching. First, is the opportunity which media offers of improving the quality of teaching, and of students' learning experiences; for example in the use of television to illustrate dynamic processes; of radio for pacing students' studies; or use of the telephone to provide direct communication between students and tutors. The use of media in overcoming barriers to participation is a second important advantage, for example in widening access to adults, or students located in remote or rural areas, who would otherwise be precluded from participation.

A third advantage often advanced for the use of technology-based media, a reduction of costs, is somewhat more problematic. The case for lower costs is essentially based on a decline in the costs of technology relative to output, on the one hand; and the fixed, and relatively static, productivity of conventional education, on the other. It is, in essence, in the substitution of technology for teachers, or more precisely for teacher skills and expertise, that the cost advantage of distance education lies. Not surprisingly, for those media subject to high fixed costs the substitution is most cost-effective where student numbers, or other indices of output, are high.

4.9.2 Range of Technology

Communications in distance teaching embraces a range of activities: from the 'one-way' tranmission of course content, for example through radio or television programmes; to 'two-way', and sometimes multi-point, communication between tutors and students through technologies such as telephone conferencing, computer mediated instuction, or interactive video. Nevertheless while the range of media now used for distance teaching is quite extensive, the primary medium is still text, which is used in some 94% of programmes in some eighty countries (Selim, 1986). Other media commonly used in distance education programmes include audio tapes (40%); the telephone (23%); video tapes (19%); kits (19%); radio (15%) and television (19%) (Perry, 1984).

As can be seen from Table 21, radio is used in a higher proportion of distance education programmes in Asia than in other areas of the World, for which data is available (i.e. Africa, Australia, Western Europe, Middle East, North America, South and Central America). On the other hand, and not suprisingly perhaps, the telephone and home kits are used to a much lower degree. The percentage of programmes using television is high, but not inordinately so when compared to other areas of the World.

TABLE 21:

PERCENTAGE OF DISTANCE TEACHING PROGRAMMES USING SELECTED MEDIA

Media	**Asia**	**Europe (West)**	**North America**	**All Progs.**
	%	%	%	%
Audio	38.0	27.9	39.6	39.9
Telephone	7.1	20.7	27.7	22.9
Kits	0.0	9.3	19.5	18.6
Radio	35.7	7.9	6.9	15.4
Video	16.7	7.9	20.1	19.2
Television	19.0	5.0	25.2	13.5
		N=140	N=159	N=468

Source: (Perry, 1984)

The technologies, and teaching methods, used by these five education systems are shown in Table 22.

As outlined in preceding chapters, face-to-face teaching is provided by all four universities, although the level of provision may border on the minimal. In addition to study centres STOU uses residential schools, and provides practical or laboratory sessions for science courses. Printed texts are used as a central medium of instruction by the three open universities, and library services are provided, in co-operation with other institutions, by STOU, UT and IGNOU.

The only communications technologies used extensively in these five systems are radio and television.

TABLE 22:

USE OF TECHNOLOGIES BY FIVE ASIAN SYSTEMS

Technology	**STOU**	**UT**	**IGNOU**	**CRTVU**	**CIET**
* Audio Tape	*	–	*	–	–
* Video Tapes/Film	*	–	*	–	*
* Film	*	–	–	–	–
* National Radio	*	*	–	–	–
* Local Radio	*	*	–	–	–
* Open Broadcast Television	*	–	–	–	–
* Satellite Television	–	*	–	*	*
* Microwave Television	–	–	–	*	–

The are wide differences between the five institutions with regard to the manner and extent to which they use radio and television:

- STOU broadcasts 150 twenty-minute radio programmes each week, and three thirty-minute television programmes each day, that is 7,800 and 1,100 each year respectively;
- UT has access to television to broadcast one twenty-five minute programme, throughout Indonesia, once every two weeks, but uses radio more extensively, broadcasting about 1,000 programmes each year;

- IGNOU has not, as yet, used radio or television, but does use audio and video tapes at study centres;
- CIET produces about one hundred new programmes each year. Programmes are transmitted for forty five minutes each day, for 220 days per year; that is about 165 hours each year;
- CRTVU, and LNRTVU are centrally based on television. television.

4.9.3 Resource Factors

Technology-based distance teaching can require substantial investment in accommodation, equipment and professional staff.

- Accommodation: The accommodation in institutions allocated to audio, video, radio and television studios is variable; 8% at STOU, almost 10% at IGNOU, and 43% at CIET.
- Equipment: As discussed in Section 8, the annualised value of equipment, as a percentage of staff and other stated recurrent costs, indicates that of the three open universities only STOU can be seen to have substantial resources involved in equipment for communications through television and radio. Presumably because UT uses television for only ten hours each year; and IGNOU has not as yet used radio or television.

CIET on the other hand has a substantive investment in communications equipment. Details of the investment in equipment at CRTVU are not available for comparison, but is thought to be substantial.

- Staff: The precise percentage of total staff resources allocated to audio/visual activities is not known, but is thought to be substantial at CIET and STOU.

It will be evident from the analysis in preceding sections, that the investment of resources in communications technology is variable, being comparatively high at CIET, and STOU, and low at IGNOU and UT. Details at CRTVU are not available for comparison.

Among the three open universities, the level of investment of resources in communications technologies is substantial at STOU, and relatively modest at the two other universities. The UK Open University for example allocates some 14% of its total budget to the BBC for the production and the transmission of television and radio programmes. The modest investment at two of the open Universities is not surprising however, having regard to small use made of television at UT, and the total absence of radio and television at IGNOU to date. The costs outlined above do not include the indirect expenditure or the cost of opportunities foregone, by external institutions, for example, in providing technical support or/access to communications networks. However while data on the costs involved in providing access to external networks is sparse, the 'opportunity' costs incurred by 'external' institutions appear to be modest for the most part.

- STOU pays about 1 million US dollars for access to external networks, mainly television;
- IGNOU has not used radio or television as yet;
- CIET broadcasts in the morning hours at times of low alternative demand;
- The use of television at UT is minimal, about ten hours each year. Radio is used more extensively, and it is known that there is some alternative demand for the transmission time. However, the 'value' of the time is unknown.
- Data on LNRTVU is not available for comparison.

4.10 Conclusions

4.10.1 Introduction

Having reviewed the available data on resource factors it is possible at this point to attempt to address some pertinent issues relating to the use of communications technologies for distance education by these five institutions. Three questions seem relevant:

- Have these insitutions widened access to higher education?
- What role has the communications technologies played in this connection?
- Are the systems cost-effective?

For the reasons outlined in Section 1 above, the data available will allow only tentative conclusions to be drawn regarding these questions.

4.10.2 Widening Access

In addressing the question, as to whether these institutions have widened access to higher education to a significant degree, it is necessary to look first at the number of students registered by the institutions; and then at the enrolment for all institutions at tertiary level in their respective countries. The data on students currently registered at the time of the survey, and on those who had ever been registered, are shown in Table 23. The figures for enrolment are those relating to the Central China Radio and Television University (CRTVU) and not LNRTVU, as the former are more relevant in this context.

TABLE 23:

NUMBER OF STUDENTS ENROLLED IN FOUR INSTITUTIONS

Category	**STOU**	**UT**	**IGNOU**	**CRTVU**
Year	1987	1987	1987/88	1987
Currently Registered	151,817	68,804	36,000	618,341
Ever Registered	537,829	110,271	37,000	1,421,862

The number of students enrolled in all tertiary level institutions in the four countries, for the most recent year for which data is available, is shown in Table 24. The figure for Thailand includes students enrolled at STOU, and Ramkhamhaeng (the second 'open university' in Thailand). It is understood that the data for Indonesia includes students registered with UT. The data for China does not include CRTVU students and students of other non-traditional higher education institutions; and in the case of India, IGNOU was not established in 1979, the year to which the data relates.

TABLE 24:

NUMBER OF STUDENTS ENROLLED IN ALL TERTIARY LEVEL INSTITUTIONS

Category	**THAILAND**	**INDONESIA**	**INDIA**	**CHINA**
Year	1983	1984	1979	1984
Students Enrolled	1,120,084	980,162	5,345,680	1,443,605

It is possible to derive an indicator of the relative significance of enrolment in these four institutions in the context of total enrolment in tertiary level institutions in their respective countries. Enrolment in these four institutions as percentage of enrolment in their respective countries, in the years shown in Table 24, are STOU 13.6%, UT 7%, IGNOU 0.7%, and CRTVU 44.3%. The indicator is somewhat crude in that it is subject to the same qualifications regarding data on students in distance education systems, outlined in Section 5.4.5 above. Moreover, as will be evident from the two tables, it is subject to the additional qualification that the data relates to different years.

Data on the same year is not available as a basis for comparision. However it is possible to provide an estimate of enrolment in each country in the same year, as that to which the data on the institutions relate. This is possible by deriving an average annual growth rate relating to student enrolment in tertiary education over previous years, and by using this derived rate to predict enrolment in the year for which data on the institutions is available.

Using the revised figures the percentage enrolment becomes STOU 6.1%, UT 5.3%, IGNOU 0.5%, and CRTVU 38%. However as it is not evident that the rapid expansion of numbers in higher education has been sustained in recent years, these latter estimates probably understate the significance of the role of the institutions. It seems reasonable to conclude therefore that enrolment in STOU probably represents more than 6% of total enrolments in all third level institutions in Thailand. Enrolment in UT represents more than 5%, if all students are taken to be 'active'. It is uncertain whether this proportion of total enrolments will be sustained, however, in view of the recent decline in registrations.

CRTVU is exceptional in that enrolment constitutes some 38% or more of third level students in China. This is clearly a substantial porportion. However, as was mentioned in section 4 above, CRTVU and the Regional Universities are not like Open Universities, and are more akin to a special category of dual mode institution. There are evident strengths in the approach of CRTVU which would merit further detailed analysis. It is clear however, that the resources required in terms of both accommodation and staff are higher than for the Open Universities.

Taken as a whole, enrolment in these institutions represents a significant contribution to widening participation. It should be remembered also that IGNOU is only at the start of its activities. It seems reasonable to conclude that distance education of this kind has a significant role to play in widening access to higher education.

4.10.3 Role of Communications Technology

The point has been made elsewhere in this report that students make little use of communications technology, and of television in particular, in learning. If one accepts that two systems, CIET and CRTVU, are effectively developed around television, and that two of the open universities, UT and IGNOU, make little use of television, the question is then one of whether investment of resources at STOU is disproportionate to the use of these course materials by students.

Television and radio broadcasts offer important advantages to institutions involved in distance education. First among these is the role of broadcasting in raising public awareness of the distance education institution and its programmes; and in securing acceptance by the community at large, of this alternative means of providing access to higher education. The programmes are important also in providing distance education institutions with the opportunity to demonstrate excellence in the academic content and teaching quality of their programmes, thus helping to secure acceptance by the academic community of this innovative approach to learning. They provide also an effective means of advertising courses. An appraisal of communications-based teaching which does not take these and related advantages into account, is likely to underestimate the role of broadcasting in distance education.

On the other hand there are two problems which arise in maximising the benefits of communications technologies in general, and television in particular. Inappropriate transmission times is a major problem in many distance education programmes which depend heavily on radio and television programmes. STOU broadcasts about 150 twenty-minute radio programmes each week, which are transmitted from 9.00 a.m. to 4.30 p.m. each day, and three half-hour television programmes, are broadcast between the hours of 6.00 p.m. and 7.30 p.m. when, as noted in Chapter Three, many students are travelling home from work and cannot view them.

Inappropriate transmission times need not present insuperable problems, where students can record programmes 'off-air' for later use. This has the additional advantage of allowing students to use the programmes at a more convenient time; and to use them more effectively as a learning tool, for example, by replaying parts of the tape, or using them in conjunction with other materials either subsequently or in an integrated manner. The practice of using broadcasting in this fashion can overcome many of the difficulties of poor transmission times. However it is critically dependent on students having access to radio and video recorders, either on an individual basis or through study centres.

This raises the second problem, availability of receivers. One authoritative source indicates that ownership of television receivers in Thailand in 1983 was only 17 per 1,000 inhabitants (Unesco, 1988). The figure may be an underestimate of television ownership at that time, or, ownership may have increased significantly since then. Nevertheless, where low rates of ownership are not countered by alternative means of access, e.g. by providing access to programmes at a network of study centres, the impact of television is limited, both as a teaching medium and as a means of creating awareness and of disseminating information on the universities' operations.

4.10.4 Cost Effectiveness

As explained in Section 1 above, it has been not possible to undertake a comparative cost analysis of these five systems. Nevertheless the study as a whole would seem incomplete without some assessment, however qualified and tentative, of cost effectiveness. From the data outlined in this chapter, and from the review of the previous studies, some tentative conclusions can be drawn.

- The subvention by government per student place is modest, as shown in Section 4.5 above.
- While data on the support by government to conventional education is not generally available it is clear that the operating costs per head are substantially lower at STOU than at conventional universities in Thailand (Srisa-an, Wichit, 1986).
- The difference in cost per graduate is likely to be less favour able. Information on graduation, and student

retention, rates is still too uncertain to support firm statements of cost effectiveness per graduate. Preliminary indications suggest that retention rates in UT are low, and that graduation rates in STOU are lower than those for the UK Open University. This is an area where further data would be most valuable.

- It is clear from the analysis of accommodation that the capital cost of providing student places is very much lower in the three open universities, than in conventional education. The degree of difference depends on the 'norms' for student places in conventional education, and on any differences in the quality of accommodation. If one ignores the last point, and uses norms for conventional education common in more developed countries, the cost of accommodation per student place is likely to be in the order of 5%–10% of that for conventional education.
- Television is has not been used as yet by IGNOU, and is used for only ten hours each year by UT. STOU uses television for some 1,100 hours each years. Not surprisingly therefore, of the three open universities, only STOU has a substantial investment in television equipment.
- The use of television by CIET does not replace the teacher in the classroom: programmes are intended to enhance, rather than replace, the teacher. The use of television therefore represents an addition to normal costs. However, it may help to substitute for scarce expertise in teaching, and so enhance the quality of education.
- Radio is used extensively by UT and STOU. Details of costs for radio are not available separately. However there would appear to be no reason to believe that it is less cost effective than in other areas of the World where radio is used.

4.10.5 Indications for Further Research

As indicated in Section 1 above, it is hoped that this study will encourage further research on these innovative and major distance education systems. Areas of particular interest from a resource perspective are:

- Student retention, and graduation rates;
- Government subvention per student, relative to those of conventional education;
- Capital and recurrent costs, relative to those of conventional education.
- The comparative cost of different technology-based media.
- The characteristics of part-time staff and procedures for their induction, training and management by whole-time staff.
- Payments to part-time staff, relative to whole-time staff.

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TABLES

TABLE 1: Estimated comparative cost per graduate at UAJ as a percentage of cost at other universities.

TABLE 2: Population and per capita income (US Dollars).

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PART 2:
SYNTHESIS

CHAPTER 5: SOME KEY ISSUES

An analysis of distance education systems raises several broad issues that need further examination. Firstly, there is the question of access and equity: to what extent does the system widen educational opportunity, especially to previously disadvantaged groups in the population at large? Secondly, come questions, not about the quantity of learning that may be taking place, but about the quality of the distance teaching-learning process and how it may be equated with that of more conventional institutions and systems which provide some bench-mark (often more imaginary than real but nonetheless one to which distance educators are expected to aspire) for purposes of comparison. Thirdly, because of the nature of the exercise where the teacher and student are geographically separated for most of the duration of a course, the effectiveness of the use of communications technology assumes considerable importance. Fourthly, the all-important role of management, to ensure that the system works in a cohesive, efficient and sensitive way for students, needs to be examined. So, too, resource factors and related matters of costs and benefits require analysis. In this section of the Study, all five issues are regarded as 'Key Issues' in that they are relevant to all large-scale distance education systems. Moreover, the answers to the questions that are raised within them will largely determine the extent to which institutional objectives are likely to be reached.

In developed and developing countries, especially where large-scale open university systems are launched by governments to meet pressing educational demands that conventional systems have failed to meet and are unlikely to do so, it is natural that the early phases of development should be somewhat preoccupied, if not overwhelmed, with quantitative questions of access and equity rather than with those of quality. Yet any system which begins, or is forced to begin, before planning has been able to ensure that the essential qualitative elements are built into the original structures and dynamics of the system, is placed in an unenviable position from which it is not easy to escape, especially if the rates of growth and development in terms of both student numbers and new programmes are such that a period of consolidation is continuously delayed. Now, at least, any new distance education system can learn from the experiences of a variety of other systems before committing itself to an educational blueprint and this should mean being better able to consider issues of quantity and quality simultaneously from the outset. Providing access and equity, however, is in many ways less of a challenge than that of establishing a reputation for quality teaching and efficient administration that will win unequivocal recognition from the society that it serves.

The history of distance education in Australia is one example of how confidence can be gained from experience until there is a genuine belief that a well-managed distance education system can not only be equal to classroom teaching but often superior to it. Gough (1980a), writing about the Australian scene, described the evolution of distance education in the following terms that have relevance for other regions as well:

> "In earlier days the keyword of distance education was *access*. The major concern was to allow students who would otherwise be denied educational opportunities to gain access to courses. Not that other matters were of no concern but without access they were of no consequence. Once access was no longer an issue the keyword became *equivalence*. The concern was now that students taught at a distance should receive an equivalent education and an equivalent qualification. It was the attempt to make distance education academically respectable. In recent years there has been another shift. In general, distance education is accepted as a valid although still regarded by some as a less desirable form of education. Now the emphasis of distance educators is on *excellence*. The identifiable shortcomings of on-campus education as well as the criticisms of earlier forms of distance education have led to the rejection of the notion that access and equivalence are enough. Whether it be in the quality of our learning materials, our teaching practices or our support services, or in the efficiency and effectiveness of our academic and administrative systems or in the professional competence and development of our staff, the quest is for excellence. Access, equivalence and excellence are the key words."

5.1 Access and Equity (the 'quantity' of learning)

In considering how effectively distance education systems might be widening access to higher education, one has to consider not only the raw statistics of enrolment numbers but also the extent to which these systems are meeting social and individual needs by reaching out to particular sections of society previously denied educational opportunity by the traditional educational system. Such social groups have generally been disadvantaged in terms of their location, financial circumstances or the fact that as working adults, attending conventional educational institutions on a regular basis is not feasible. The question of equity, then, is one that does not ask merely *'how many* students?" but rather *'who* are they?"

The second dimension to the issue of access and equity is concerned with what happens to those students who gain admission. How well do they perform? What proportion of the students achieve their individual goals? To what extent has the 'open door' been just that or become a 'revolving door'?

5.1.1 Widening the Access: An Open Door?

In terms of cumulative enrolments, there is no doubt that as a group the distance teaching universities in the four countries concerned have created educational opportunities for vast numbers, numbers in hundreds of thousands, even millions! In no other part of the world is the scale so immense or likely to expand at so rapid a rate.

In the context of access, the role of CIET is especially interesting in that it is not only attempting to open a door to children denied an opportunity to attend school but also to prevent the door from 'revolving' for so many who find the classroom in its traditional format so unattractive and unproductive that they drop out altogether.

In terms of numbers for whom the door to higher education has been opened outside the conventional system, the CRTVU system obviously stands out. Since 1979, over one million full-time or 'registered' students have been enrolled, half of whom have graduated, and another half a million 'single-subject' students have completed a course. This has resulted in an increase from 0.7% to 4% of adults aged over 25 years throughout China who are now engaged in higher education. If equity in this context were to be interpreted to mean equal opportunity for all by virtue of accepting students without formal educational qualifications on a 'first come, first served' basis (as the U.K.O.U. essentially has done for nearly two decades), then the CRTVU system falls well short of this ideal. At this stage of development and with the after effects of the Cultural Revolution still being very much felt, full-time enrolment is not available to the population at large (how could it be with over one billion?) but to those in work units who are selected for their likely positive contribution to the high priority national need for a more highly skilled workforce. Nevertheless, single-subject enrolments are on the increase and if that trend should be allowed to continue and more 'spare-time' students accepted as well, then a more open entry system should develop. This would, of course, have very significant implications for the teaching methods adopted by CRTVU since the present classroom TV sessions held according to fixed timetables would not be appropriate for many students attempting to study in a more independent way in their own time and at their own pace to suit their individual circumstances.

In Thailand, STOU began in 1980 with an intake of 82,000 students and now has about 150,000 currently enrolled. Over the intervening period approximately 500,000 Thais have enrolled at the University. Though the numbers are impressive in themselves, it is the fact that STOU has successfully reached out to those of a different age range from the conventional full-time student and those who previously have not been able to attend a local university. The objective was essential to bring higher education to working adults living outside Bangkok and other major cities and especially to the more remote rural areas, and that is what has been done, with enrolments reflecting the distribution of the population in the capital and the outlying six regions (about 30% and 70% respectively) and the average age being about 28 years. It is also satisfying to know that the sexes are now equally represented in STOU enrolments and that women have responded in large numbers ever since STOU opened its doors.

The picture of access provided by Universitas Terbuka is a mixed one. Quite a change has taken place in the nature of the response of Indonesians to the UT project since it began four or five years ago. In the heady days of 1984, plans to commence with an intake of 25,000 had to be adjusted to cope with 270,000 applications so that eventually 60,000 were accepted. Since then, however, applications have dwindled and the intakes accordingly so that in the 1987/88 academic year only 4,000 new students were admitted. The result of this trend is that the current enrolment of active students of 70,000 is only marginally above that of the initial intake. While the door may still be open, it would seem that most of the potential students must have some doubts as to whether it can lead them either to a quality education or a generally acceptable qualification.

Though UT was created essentially to meet the problem of having hundreds of thousands of qualified high school graduates unable to find a place either in the state or private conventional universities, the central target group has not responded to the UT educational mode in anything like the numbers that were anticipated. Consequently, the open door has admitted quite another kind of student, one who is almost certainly working and is about 30 years of age. The student profiles show that 80% have completed high school, 85% are working, almost 80% are males and 75% are over the age of 25 years. Clearly there is little equity as far as women are concerned but the inequities no doubt start from earlier phases of education where only a small proportion of girls complete high school or gain an equivalent qualification that is necessary for entry to any university including UT. Whilst it may seem that UT has 'missed the target' as far as helping to meet the unfulfilled demands from high school graduates, this may be a good thing for the University in the long run as this age cohort the world over has been shown not to be the most likely group to succeed at distance education which calls not only for intelligence but for a high degree of self-discipline, motivation, maturity, tenacity and independence of spirit, all qualities that are more likely to be found in students of more mature age.

In the case of IGNOU, enrolments have increased from 4,500 in 1987 to over 30,000 in 1989 so the doors are about to swing wider with the advent of undergraduate programmes that will appeal to a wide cross-section of India's vast and rapidly growing population. It is interesting to note that about 30% of the current enrolments come from Delhi, about 20% from the three states surrounding the capital city where the University is situated and about 50% from the outlying regions. This augurs well for equity in geographical terms. With the exception of one minor certificate programme, males dominate enrolments as they do in Indonesia, to the tune of about 80% to 20%, but again this no doubt reflects the cultural situation which only an institution like IGNOU is likely to change, and then over the long term. About 40% are employed but the statistics provided do not indicate whether this includes a large number of high school graduates who have opted to become full-time students at IGNOU or not.

5.1.2 Student Performance: A Revolving Door?

There is no doubt that distance education systems such as those described in this report and other large-scale systems have been successful in widening access to higher education in one form or another. The larger the scale, the wider the door opens, but the more difficult it becomes to offer a quality educational experience characterised by effective distance teaching (the development of high quality learning materials and delivery systems) and effective distance learning (comprehensive academic and administrative staff support to underpin the independent/interactive blend of learning materials). Furthermore, open doors generally imply admitting students with less than the 'normal' entry qualifications or if they have them, they may have been obtained many years before. And the more rapid the expansion, the greater the proportion of new students (represented in the student population as a whole) who have to make the adjustment to distance learning demands by developing unfamiliar study techniques and discovering how best to use the system so that it can benefit them. In such circumstances, it is no wonder that such large-scale expanding systems that are described here stand to lose a greater proportion of their students than most conventional established universities, since anyone familiar with distance education will know that the first year of study represents the biggest hurdle for the distance student, in psychological as well as academic terms.

While there should never be room for complacency if any students are lost to a system, it must be accepted that a proportion, if they are studying only part-time (as most do in distance education) and have occupational and family commitments to cope with as well, will withdraw each year. And the reasons for withdrawal are often personal ones rather than academic, reasons over which the institution has little or no control. Yet some systems retain their students better than others. It might be because the students are carefully selected or highly motivated or both. It might have something to do with the support services provided or the very positive relationships created between teachers and learners. It might simply be that one system is efficiently organised while another stumbles from one administrative crisis to another. If the reasons for heavy losses are institutional rather than personal, then remedial action needs to be take. But the question of what constitutes unacceptable losses is not a simple one to answer in absolute terms, or for that matter, in relative terms.

In some systems the proportion may be unacceptably high by any criteria; in others they may be thought to be unacceptably high because expectations for retention were unrealistic in the first place; in others, retention rates may be most satisfactory in the circumstances yet thought to be less than that when compared to conventional universities, with which comparison is usually invalid because of the totally different circumstances which come into play, not the least the fact that one group of students generally study full-time in a socially supportive environment while the others study mostly on a part-time basis with more intermittent support.

Yet there are few distance education systems that escape criticism for their so-called drop-out rates, no matter how low they may be, for it is not possible to determine what should be 'acceptable' in any absolute terms when there are so many variables in every system that renders each one unique. On the one hand, there are different external pressures such as political objectives, cultural traditions and socio-economic imperatives; on the other hand, there are internal operational differences such as the availability of financial and human resources, management structures and styles, physical facilities, perceptions of educational standards, levels of personnel competence and commitment, variable rates of change, technology availability, and many more besides. So much is a reflection of the cultures in which these systems have to operate. Any comparisons that are made can seldom be justified across national boundaries; they are probably difficult to justify within them, unless like can be compared with like. But this is unlikely since the notion of 'national' in this context suggests that only one such system will operate rather than two or more.

One of the most common forms of comparison that is often attempted, somewhat futilely, is that of comparing drop-out rates with conventional universities where the large proportion (perhaps all) of the students are full-time and where many may even live in university residences where tutorial help is provided. If there happened to be large numbers of part-time students comparisons might be more valid as these students would also be attempting to combine study (admittedly in the traditional face-to-face mode) with occupational and family commitments as most distance students have to do. There is also a tendency, particularly in developed countries, to assume that few students drop out of conventional universities without actually finding out what the actual statistics are and then measuring open university withdrawal statistics against some kind of mythical perfect score. If comparisons with conventional universities are to be made at all, they must take into account the norms applying to that particular country. An instance can be cited, for example, of a conventional university in a Southern European country where up to 70% of students drop out in the first one or two years of their courses, while that horrendous picture can be balanced by citing many other institutions where losses are quite minimal.

It can also be a spurious exercise to attempt to compare graduation rates of a distance education system with conventional universities since many distance students have shorter term goals than obtaining a degree and withdraw once these are obtained. It can reasonably be assumed, however, that most full-time students in a conventional university are primarily motivated to complete a full degree programmes to enhance their employment prospects.

So what conclusions can be usefully drawn about the question of the revolving door as it affects the universities described in the case studies? Before attempting this, it is necessary to see what has been revealed by the studies as far as their 'outputs' of students are concerned.

In the case of CRTVU, comparisons have been made with conventional universities and there is likely to be some validity in this since it is known that most of the students in the CRTVU system are full-time 'registered' students and attend regular classes (albeit TV classes) led by a full-time tutor. According to the case study, about 70% to 75% of every intake has graduated and this, according to informal advice from part-time tutors in conventional universities, compares quite favourably with the input/output ratios to be found in conventional colleges. This very commendable result is not surprising since the penalties for failing to meet course requirements are severe, not only in academic terms but in terms of career prospects and presumably status amongst peers.

Making comparisons between systems or institutions on the matter of student retention is, as has been shown, likely to be an imprecise exercise at best. An additional factor contributing to this is the difficulty in obtaining statistical data from different institutions that mean even roughly the same. Just defining what is meant by a student 'drop-out' can be confusing since every institution seems to have a different concept as to how and when such status should be applied. The Universitas Terbuka, for example, has three categories of student: active, passive and drop-out. 'Active' students are those who register consecutively each semester, 'passive' students are those who have not registered in more than a year, while those who do not register for two years consecutively are formally dismissed from the University and have to re-enrol as new students should they wish to return. In calculating the retention rate at UT, one may decide that only 'active' students should be counted and regard 'passive' students as lost to the system as much as formally dismissed student drop-outs. Or one might regard 'passive' students as only temporary withdrawals who might re-enrol the next year and therefore bracket them with the 'active' students. Obviously, whichever strategy is adopted will make a difference to the conclusions reached about retention rates. But it would seem that by any criteria, including the fact that intakes of new students have fallen alarmingly in recent years, UT has a serious dual problem of getting students to enter the open door and once inside to retain them.

It would appear that STOU's open door policy will be more effective when it too can point to a higher graduation rate but the figures available are not precise enough to make any but tentative observations about these or annual retention rates in various programmes. One figure quoted in the case study indicated that from 1983 (the earliest year in which graduates could be produced at STOU, presumably) to 1986, about 10,000 graduates were produced, completing programmes that could be two, three or four years in duration. When compared with a cumulative enrolment over ten years of about 500,000, a 'graduation rate' of only 2% could be, to say the least, disappointing. Such crude arithmetic no doubt gives the most pessimistic view possible of the true situation but it would seem that the STOU door is revolving at a disturbing rate still. Annual pass rates of 38% for the two-year continuing Bachelor Degree Programme, 20% for the three-year Programme and 15% for the four-year Bachelor Degree Programme would seem to confirm this.

Such outcomes would seem to confirm that the challenge of retaining students and encouraging them to perform at an acceptable level of competence until they can meet course requirements in full is more likely to be met if systems can be cohesive by having a correctly structured teaching-learning process combined with an extensive provision of student support services efficiently administered. From the CRTVU example, and others around the world operating different models on a variety of scales, there seems to be more than a coincidental positive correlation between rigidly paced systems and satisfactory retention rates. Perhaps open doors need not only to swing smoothly on well-oiled hinges but should beckon to students only after they have been made clearly aware from the start that distance education is demanding, that personal sacrifices have to be made by students and their families to ensure that a productive routine of study can take place and that studying at a distance calls for special qualities that enables a student to persevere in the face of difficulties and competing pressures.

More discussion of this is to be found in the next section which raises the most important issue of the quality of learning, which requires not only scholarship and expertise from the staff of the institution concerned but a sense of commitment and a degree of maturity on the part of the student as well.

5.2 Equivalence and Acceptance (the 'quality' of learning)

The second and probably the most important set of issues that distance education systems have to face is that relating to the question of standards and how the system might best earn recognition as equivalent to a conventional institution of the same level. The central concern then becomes the quality of the teaching-learning process, firstly, as it is perceived by those outside the system (politicians, conventional academics and administrators, other distance educators, employers in the market place and the community at large, especially those who are potential distance learners) and secondly, as it actually happens. This, in turn, raises questions about such issues as the nature of the learner, relevance of programmes, the quality of the learning materials produced, the quality of the learning experience overall, integrity of student assessment and the role of student feedback combined with systematic evaluation to effect ongoing improvement in the interests of the students. Not only have theoretical answers to be found to these questions but mechanisms put into place that can clearly demonstrate to the least charitable critics that theory has been translated into action.

5.2.1 What kind of learner?

Every educational system or institution has to decide from the outset what kind of learner it wants to produce. Distance education systems can be no exception to this. At the university level, at least, status and recognition of a distance teaching institution or system will generally only be won in the longer term and then only if the quality of the products (the graduates) can be demonstrated to be equal to those that are produced by the conventional institutions and if the processes involved in producing those graduates are perceived to be equivalent to the best traditions of the best universities in the country concerned. The fact that the educational experience may be vastly superior to that which is experienced in most of the nation's conventional universities will count for little, even if this fact can be demonstrated and even if the critics themselves know full well that a large proportion of the teaching that takes place in universities is no more than mere instruction that encourages, and in some countries even demands, mere rote-learning or memorisation.

Accordingly, distance education universities, to be worth of that name, must clearly aspire to an educational philosophy (no matter how difficult it may be to achieve on a large-scale at a distance) which aims at achieving more than mere instruction, memorisation or the imparting of routine skills. Instead it must develop in their students an ability to question, to think critically and to organise their thought processes in a logical and rational way. Such a philosophy has implications for the whole educational process including the development of programmes, courses and learning materials, decisions about the media to be used in delivering these materials, the nature of academic and administrative support systems and getting the 'right' blend of independent and interactive learning experiences that are considered to be essential for an acceptable form of university level education.

The aim, then, of a distance education system (at the university level at least) shoud be to develop learners who are neither too dependent nor completely independent. Whilst it should be an objective to help students become and stay responsible to themselves, maintain and increase self-esteem, recognise their own strengths, skills and needs, trust their own energies and intuition, deal effectively with confusion and ambiguity, clarify what they want to learn and be able to relate to others in group situations, there is a danger that independent learning if taken to its logical conclusion of self-directed learning, could mean impoverished learning. The compromise between these extremes of dependence and independence in learning is to develop *interdependent* learners, that is, learners who enjoy a certain amount of autonomy in choosing their learning strategies and when and where to study, but are expected to interact from time to time directly with their academic mentors and/or fellow students. Such interaction may be face-to-face but not necessarity so since alternative measures can now be taken to mediate the interaction through the judicious use of communications technology. This issue of 'touching with technology' is discussed further in Section 4.3 below.

5.2.2 The Programmes

The problem of gaining acceptance or recognition through demonstration of equivalence (with conventional universities) in its various forms begins for distance teaching universities as soon as they start to create their unique programmes for which they were established. In this sense, seeking equivalent status is almost a contradiction in terms, since the raison d'être for most DTU's is to fill educational programme gaps left by the conventional systems and to reach out to student groups who have either been excluded from such systems or ignored by them. In other word, distance universities must struggle for equivalent status while having a different mission, different programmes, different methods and different students. In such circumstances, an appropriate slogan might well be "Different but Equal!" While it is easy enough to demonstrate the differences, the way to achieving equality with conventional universities means identifying those elements which are regarded as essential to a university learning experience and ensuring that these elements are an integral part of the distance education system, albeit often in new and imaginative forms.

In developing ETV programmes for schools in six states in India, CIET has not had to justify either the new content, new methods or the unfamiliar medium of television in the classroom in terms of equivalence to the old and familiar (and deficient!) curricula and methods of the conventional system since its mission has been to enrich them, and certainly not to be measured by them. The DTU's, on the other hand, have been created not only in response to the pressure of numbers but also because new, more 'relevant' academic programmes are needed to respond more sensitively to changing social needs, especially those that are emerging out of the trends towards industrialisation and urbanisation that are evident in most Asian nations to-day. Developing so-called 'relevant' programmes can be clearly observed in all four of our distance university systems.

From the list of programmes provided in the CRTVU case study, it would seem reasonable to infer that the courses are not only very relevant in providing the knowledge and skills the particular groups of selected students require in their work places but they correspond closely with similar courses to be found in conventional universities and institutes that operate to serve specialised professional needs. Designing such programmes for professions in science, engineering and technology generally requires close collaboration with the professional associations concerned to ensure that graduates in these areas will have the knowledge and skills required for employment within the professions for which they have trained. In such circumstances, relevance and equivalence are not just complementary but almost identical concepts. Unfortunately, in this sense, the three open universities are yet to develop such science-oriented programmes although STOU is in the process of doing so now and IGNOU is planning to do so in the near future.

These two universities are not alone in recognising the special challenges involved in teaching science at a distance for these areas are greatly unrepresented in distance education systems in most other countries, including developed countries that are just as in need of more scientists and teachers of science as developing countries. But it can be done and has been done successfully, either calling on local human resources and laboratory facilities to provide the essential practical experimental work or using great imagination to develop home experiment kits that will first of all travel well to their destinations, present little or no danger to the users (a situation that really gives meaning to the term'user-friendly'!) and in the end will require a true scientific approach to 'learning by doing'. Either way, the challenges are real enough so it is understandable why the three open university systems have chosen to delay offering such programmes to a later stage of their development.

Both universities and Universitas Terbuka have so far been more involved in developing programmes in the areas of the liberal arts, humanities, education, business studies and social studies. In adopting new approaches to the design of such curricula, both in terms of content and interdisciplinary techniques, there is no doubt that even if the courses are much more suited to the times it will not be easy to convince those members of the community who have studied in conventional institutions (and are most likely to be the employers of future generations of open university graduates) that 'different' may not only be 'equal' to the traditional from of presentation but better.

It is interesting to note that STOU offers degree and certificate courses through ten Schools that include a range of professionally oriented programmes areas as well as the more general liberal arts subjects. These include Educational Studies, Management Science, Law, Health Science, Economics, Home Economics, Political Science, Agricultural Extension and Co-operatives and Communication Arts. More than half of the new intakes are to be found in Education, Management Science and Law which one expects would span both public and private sectors and yet about half of each new intake (it was once 85%) are government employees, mainly teachers. This may suggest that one positive way of initially gaining recognition for the awards of a distance teaching university is to provide programmes for public servants and teachers that will be regarded as relevant for promotion within the services and thus be assured of acceptance by the national government. The fact that only a small proportion of newly admitted STOU students are unemployed is difficult to interpret correctly without knowing the circumstances. It may be because they cannot afford to pay the fees or they may have doubts about an STOU qualification enhancing their employment prospects.

5.2.3 The Quality of Learning Materials

Unlike conventional universities, the quality of the educational process that takes place in a distance teaching university is imbedded to a substantial degree in learning materials that are highly visible (and/or audible) and readily available to scrutiny from anyone interested enough to want to examine them. Consequently, one of the most critical elements in the search for 'equivalence' or excellence must be the design and preparation of high quality learning materials. But by what criteria should such judgment as to quality be made?

Firstly, having decided what it is that is to be taught, most distance teaching systems are inclined to seek equivalence and acceptability in terms of scholarship by enlisting the help of highly respectable academics from conventional universities to provide the expertise in subject matter as authors or course writers, ideally agreeing to write according to distance education principles or guidelines that other specialists such as instructional designers have evolved.

More specifically, these guidelines are likely to suggest to the author or outside expert what it is that constitutes a 'good' university distance education course and would probably raise the following questions as a kind of check list:

- What are the objectives of the course?
- What kind of learner or level of learning is involved?
- Are the learning activities in an appropriate sequence?
- Is the material structured to provide clear direction, encourage student activity and cater for individual differences? (Here reference could be made to advance organisers, in-text questions, self-assessment exercises, enrichment remedial sections. etc.
- Which media are to be used and why?
- How 'readable' is the material? (Style and tone are important.)
- Does it provide for two-way communication?

- Will there be opportunities for personal contact
    i) with tutor?
    ii) with other students?
    iii) with both, separately or together?
- What support systems can the student call upon?
- What evaluation procedures are built into the course?

Broadly these questions are posed to ensure that students are treated as individuals needing direction but also needing to be given scope for initiating personal learning strategies with which they are most comfortable or secure. Achieving this ideal through a well-designed product in the form of course materials supported by a dynamic interactive process of communications between teacher and student at a distance is no mean feat. But it can be done and indeed has to be done before this mode of teaching and learning will gain acceptance in the community as a viable alternative to traditional educational practice, no matter how imperfect the latter may be in certain cases.

A real dilemma for designers of distance education courses lies in the fact that if a course is designed and structured so meticulously that learners have no choice in what they learn or how they should learn it, then it can be criticised for inhibiting creative thinking and critical analysis. To attempt to provide the complete learning package that is to be digested in modules 'to be taken as prescribed' like some sort of educational medicine, can lead to two negative consequences: firstly, students may be conditioned to excepting whatever is prepared for them as the last and only word on the matter concerned, without searching beyond the course material for other analyses and interpretations; secondly, we may be ignoring the fact that students themselves can inject something very positive into a course, given some freedom of choice in their sources of information and learning strategies. If this idea is taken further and it is argued that education aims, or should aim, at 'personal enhancement' as well as dissemination of academic knowledge, understanding and skills, then it is important that a high priority is placed on the value of 'learning to learn' and especially learning in an independent and autonomous way, long after formal tuition ceases.

If learning materials of high quality are produced with a view to requiring real learning to take place and not just memorisation of facts, then forms of student assessment that are developed must also reflect this objective.

5.2.4 The Quality of the Learning Experience

The quality of the learning experience will depend substantially but not entirely on the quality of the learning materials and their mode of delivery. While much depends upon how interactive the methods and media can make the materials, a good deal also depends on the extent to which the student can be given opportunities to interact with other people. Getting the mixture right between elements of independent study and interacting with others is critical. But it represents yet another dilemma for distance educators.

This particular dilemma rests in the fact that distance education by definition implies a teaching strategy that depends essentially on an independent learning situation which must be designed so that the individual student can plot his or her own path through a particular course with a minimum of outside assistance. On the other hand, systems, which rely solely upon the maturity, stamina, motivation, perseverence and intellectual capabilities of its students to survive the rigours of isolation and the competing pressures of family, occupational and community obligations without systematic organisational support normally cannot expect to receive a high return for their investment. That is, it is unlikely that there will be satisfactory retention or completion rates amongst its students. As has already been suggested above the aim should be to create neither dependent nor totally independent students but rather *interdependent* students.

But just as it is essential to produce high quality materials to facilitate meaningful independent forms of study, so is it necessary to do everything possible to ensure that any form of interaction, either face-to-face or technologically mediated, is a quality activity. If this is not done, students will simply decide not to waste valuable time on unproductive exercises such as attending study centres for ineffective tutorials, joining unstructured self-help group discussions or tuning in to so-called interactive radio or television programmes which are neither well presented from the studio end nor encourage active participation in discussion by student audiences.

While it appears that most large-scale distance education systems being developed around the world are aware of the need to 'get the mixture right' of independent and interactive learning and to provide various forms of decentralised academic and administrative support (the Human Touch), the actual dynamics of the systems in operation are not always providing the kind of learning experiences that planners envisaged, students expected or other institutions of higher education demand before they are prepared to accept distance education as a viable alternative to the classroom situation.

The reasons for this vary from one system to another in detail but there are some problems common to most. And, as it has been already stated, the fact that some of these problems exist within conventional higher educational systems does not seem to make the task of gaining equal status with them any easier, possibly because it is in the interests of societies generally to perpetuate positive myths about their traditional institutions rather than believe in, or recognise the existence of, negative realities. Conversely, it seems, societies generally are very ready to overlook the positive achievements of new institutions and concentrate their attention on the deficiences

So even though a new distance teaching university (and the community generally) may regard the recruitment of an eminent and highly respected scholar from a conventional university to write a distance education course a most happy circumstance in terms of ultimate recognition, that very scholar may prove, in the short term at least, to be more of a disadventage than an advantage. He/she, for example, may be unwilling or unable to write a course in an appropriate form for a distance student as required by the course team; or unwilling or unable to meet deadlines for publication, thereby creating all kinds of crises for management and students to resolve when the course materials are despatched late and the timetable of carefully planned study activities, such as assignments, tutorials, field work and examimation schedules are thrown into disarray. In such circumstances, the distance teaching university will get the blame for inefficiency, not the defaulting academic for lack of professionalism.

It is one thing, therefore, to plan in distance education for a quality learning experience commensurate with university ideals; it is another to achieve this goal which is central to the success of the venture. But at least the plans must contain the essential elements that go towards making what is generally regarded as an 'effective' distance education system within which quality, integrity and efficiency have a chance to prosper.

These elements according to Gough (1980b) are as follows:

a) a sound philosophical base;

b) an appropriate organisational structure;

c) adequate resources;

d) the use of specialised educational techniques in designing learning experiences, writing self-instructional materials, developing appropriate teaching strategies and providing adequate student access to learning resources;

e) production processes that allow learning materials to be published in pedagogically sound and attractive format using print, audio, video and other media as appropriate;

f) an efficient course delivery system in its widest sense, including the development of an effective support system to meet the needs of students at a distance both before enrolment and as enrolled students;

g) programmes for staff training and development;

h) evaluation and monitoring procedures to improve the system.

Even if these eight elements are planned for in the system, the quality of the learning experience for most students as reflected in the materials, delivery and support will ultimately depend on the quality and commitment of the staff of the university at all levels. But such has been the growth of most national distance teaching systems within developing countries (including those represented in this report) that it is unrealistic to expect that the numbers of qualified and committed staff required to operate such complex systems, even on a part-time basis, are readily available. Accordingly, it is not surprising to learn from the participating institutions that they all suffer from staffing problems which directly affect the quality of the educational processes that their students experience, processes which include the whole range of activity from the design and delivery of materials at the centre to the teaching and assessment procedures in the regional organisations.

Of most concern, however, is the performance of part-time tutorial/academic counselling staff who are the interface between the organisation and the students. From the evidence provided in the case studies and in discussion with the participants, where attendance at local study centres is voluntary, the proportion of students attending is disappointing. It may mean that they do not feel the need for such additional support or it is inconvenient to travel to the centre. But a further explanation is more compelling: that what is offered by the tutors at the centres is disappointing and not regarded as very helpful. If this is the case, then it may be the fault of the tutorial staff or the problem may have its origins in the inability of the central full-time faculty responsible for academic standards and the quality of the learning experience to provide adequate objectives or guidelines to these tutors. Alternatively, the problem may rest with the students themselves if they expect, out of ignorance or pragmatism, that tutorial assistance should take the form of a lecture, or simply provide the 'right' answers that can be recycled for examinations. Whatever the explanation, there seems to be a lack of communication between the parties concerned, namely, the central academic staff, the tutors and the students themselves about what role the tutors should be playing. This is a situation for top management to resolve.

All in all, before the learning experience can be a quality one in a distance education system, a considerable number of components of the system have to be co-ordinated and operated effectively. These include

- meeting the criteria for a 'good' distance education learning 'package' as outlined in Section 5.2 above;
- being able to despatch such materials according to a predetermined schedule that allows students adequate time to read, view or listen to the materials and seek out recommended supplementary reference material;
- setting assignments and providing qualified academic staff in sufficient numbers or the appropriate technological systems to mark student work reliably and promptly so that they can improve their performance;
- providing other forms of feedback through interactive processes;
- having an examination system that not only examines the kind of learning that is philosophically espoused by the institution but is secure, fair and consistent for all students, despite the decentralised nature of its implementation.

It is to the matter of student assessment in the context of recognition of standards that the discussion now turns.

5.2.5 Integrity of Student Assessment

In any educational system, traditional or non-traditional, student assessment from both academic and administrative points of view needs to be able to stand up to close scrutiny if the system is to have credibility. This is true of higher education in general but particularly crucial in the field of distance education where policy and practice are so much more visible to all concerned.

In academic terms, decisions have to be made about the nature and format of student assessment: will it be comprised of continuous assessment in the form of regular assignments and will they be voluntary or compulsory, or will it consist only of final examinations and will these examinations be multiple choice types that can be scored by computer processing or will they be essay-type answers that are tutor-marked? Or will more than one of these options be used in various combinations?

From the organisational or administrative perspective, everything possible has to be done to ensure that all forms of assessment have validity, reliability and, above all, credibility and security. If, for example, assignments are set and they are to count towards a final assessment, measures need to be taken to try to guarantee that they are the student's own work. Students need to be made very aware through institutional literature and in advice from tutor-markers that heavy penalties (such as withdrawal from the course concerned or exclusion from the university) will be imposed on those who are found out to be attempting to circumvent the assessment system by misusing the work of others, that is, by engaging in various forms of plagiarism in the case of essay-type answers, by copying from other students' work or by employing someone better qualified to complete the assignment in question.

In the case of examinations, every step must be taken to ensure the confidentiality of the examination papers before the exams take place, that the exams are conducted by competent and trustworthy supervisors and that student examination papers are conveyed promptly and reliably to their various destinations for marking. Finally, results need to be made available to students by the advertised deadline pre-determined by the institution so that they have time to prepare for further studies before the next term or semester begins.

All this is challenging enough where the operation is on a small scale and communications are efficient, even highly sophisticated in technological terms. On a large-scale where tens or hundreds of thousands of students are involved and where communication systems and various methods of transport are at best 'unreliable', the administration of examinations is probably one of the most difficult management challenges of all. It is also probably the most important one of all to get right because if the assessment system is perceived to be deficient, neither the teaching nor the learning processes that have taken place before the examinations will count for much, and claims of setting and maintaining high standards that can be equated with the best conventional systems will sound particularly hollow.

Student assessment, whether it be by assignment, examination or both, is obviously critical to each individual student. Because this is the case, and because so many things can go wrong, not only with a large-scale decentralised system that is characteristic of the case studies but also with individual students, policies and practices need to be developed by institutions to take such realities into account. For example, if there should be serious breakdown in the conduct of an examination, emergency measures need to be decided in advance so that they can be implemented as smoothly as possible and students are aware that there are alternative measures planned should certain circumstances apply. Conversely, if a student should suffer an accident just before an examination and is unable to attend, there needs to be some alternative available that will not require that student to wait a whole semester or year before another formal examination period is scheduled. In other words, effective management means foreseeing the problems that might occur and having contingency plans for them. In this way, assessment may be seen to be both academically sound and yet sensitive to the needs of those who are the subject of such assessment procedures.

It is not clear from the information provided in the case studies just how satisfactory the assessment systems have proven to be so far. CIET is concerned with systemic evaluation but not with assessing students. CRTVU is able to operate its examination system through its network of provincial TVU's and rely on full-time tutors who are familiar with the work of their students whom they meet at least on a weekly basis to assist in the marking of examination papers. In such circumstances, assessment has every chance of being reliable and credible. Systems, though, whose student assessment strategies depend either totally, or for the most part, on end-of-term multiple-choice examinations administered in a less tightly controlled environment, must expect to meet some resistance in their bid for unequivocal recognition as a worthy alternative to conventional university education. This could apply in the case of STOU; it is most likely in the case of UT. IGNOU has not been operating long enough to have had a chance to demonstrate one way or the other the integrity of its assessment system and the true test is to come as a sudden increase in enrolments of undergraduate students introduces a scale of operations that has yet to be experienced and with which assessment procedures in particular have so far not had to cope.

When the assessment situation of a distance teaching university is reviewed, no doubt a large proportion of the problems encountered are associated with the scale of operations. The daunting prospect of marking thousands, tens of thousands or even hundreds of thousands of student answers within a comparatively short space of time provides an institution with another dilemma. If it opts for a computerised system of marking, then the problem of marking may be resolved but the challenge of designing highly sophisticated educationally reliable and valid assessment instruments has to be faced, a challenge that is searching enough in any context but may be more than that if the necessary qualified academic staff are in short supply. Alternatively, if essay-type questions are set, then virtual armies of part-time staff are required to mark them and the problem of tutor subjectivity and competence that has to be carefully monitored to ensure consistency and fairness introduces a challenge of a different kind that is no more easy to meet. Perhaps the best answer is to be found in a combination of the two strategies on the basis that in such circumstances 'two wrongs *may* make a right' or at least be less likely to disadvantage students than relying exclusively on just one approach. It might also be the only way that the human resource problem can be overcome reasonably effectively.

Finally, a large-scale operation required to serve a widely distributed population throughout a nation that may inhabit remote and undeveloped areas also brings with it difficulties that conventional universities which conduct their examinations within their own campuses never have to face. For distance teaching universities such circumstances require solutions to problems of finding hundreds of venues with adequate facilities where examinations may be conducted, of recruiting thousands of part-time staff to conduct the examinations and of developing an efficient communication system that will ensure that all staff involved in the administration of examinations know their responsibilities and all the students concerned receive advice about arrangements in plenty of time.

5.2.6 Evaluation

From the above sections, it can be seen that if an institution is concerned about its standing in the community and especially in the field of higher education itself, then the quest for acceptability has to take into account all aspects of the educational processes that influence the quality of learning in a distance education system. These include educational philosophy, programme and course design and development, the production and delivery of learning materials, teaching methods and media used, support systems and student assessment. And it is not enough to examine each of these as if they can be judged in isolation for unless all the elements of the system work in a cohesive fashion, the whole will certainly not be equal to the sum of the parts. Evaluation of the system as a whole on a regular basis is needed if it is to have a chance of being managed and improved in a proactive way rather than a reactive way, that is, in response to crises. So often, a rapid forced rate of growth and development has characterised many distance education systems in the past leaving room only for crisis management rather than for systematic planning and evaluation.

While systematic evaluation cannot be said to be a universal characteristic of conventional universities (indeed it would be 'more honoured in the breach than the observance'), the greater complexity of managing a large-scale distance education enterprise virtually demands such evaluation if there is to be the necessary 'quality control'. Yet there seems to be few comprehensive evaluation exercises carried out in such systems either as a self-evaluation, 'in-house' project or by outside consultants invited to conduct an 'independent' assessment.

Many such systems can boast of having created divisions within their structures to engage specifically in research and development activities; others are 'planning' to do so. But in the first few years or so, perhaps for a decade in some cases, such activities tend to be given low priority and therefore few resources on which to operate so that for the most part their contributions to management decision-making processes that might bring about change and improvement in policies and practices are minimal. Indeed, the more cynical might regard the creation of such 'evaluation' offices or divisions as so much 'window-dressing' because they are expected to feature on the organisational chart of any forward-looking educational enterprise. It is to be hoped that the frank and honest self-assessments that have taken place within the compilations of these case studies and in mutual exchanges of views, opinions and experiences at the Ahmedabad and Bangkok meetings will herald the way for further rigorous inquiries by the participants in the future and set examples for other distance education systems to follow. In that way distance education institutions are more likely to gain respect for their attempts to improve the quality of the educational experience to be had within their systems and in the process gain the respect of others for their professionalism and integrity. It could even lead conventional institutions to do the same!

5.3 'Touching with Technology'

5.3.1 Mediating the Message and the Massage

The central role for the use of media is the provision of two-way communication between the teacher and the learner, including the delivery of subject matter or content (the message) to the student and the return of his or her responses to this message in various forms such as individual assignments, teletutorials and group discussions, computer-aided learning and so on. With thoughtful planning and judicious selection of media available, the nature of learning at a distance can be enhanced. The insistence on interactive elements allows mass-produced materials to cater more adequately for individual differences than the traditional teaching generally does, especially that which takes place in the large lecture room situation.

The use of a range of technologies, especially those that allow a degree of student control or autonomy over learning techniques and the pace of learning, makes sense in a learning context such as distance education where individual differences in student characteristics, backgrounds and preferences are generally most diverse. But there is no evidence to suggest that any particular medium is inherently more effective in delivering a message than any other. What really counts is the functional nature of the teaching package itself, that is, the efficacy of the instructional message. In short, it is not the medium but the message that is most important.

Designing the message in distance education requires careful analysis of the structure of the subject matter, assessing the learning attributes of students, specifying course objectives in clearly defined terms, selecting approriate learning experiences in a logical sequence, designing various forms of assessment and developing evaluative procedures for diagnosing the effectiveness of the overall teaching strategies. But even with an effective message or well-designed learning package, the great unknown that we face is what an increase in the use of technology will do to students' thinking. What kind of learner will it produce? There are some who argue that television is moving society away from valuing objective rational thinking to more impressionistic and intuitive thinking. While others fear that computer-based learning tends towards 'closed' or convergent thinking. Basically, though, no-one really knows.

Most importantly, there is a second role for technology to play if the door that it has the power to open for hundreds of thousands who would otherwise be denied an education does not lead to frustration, disillusionment or failure. What is referred to here is the power of the media not only to deliver the message but also to provide the *massage* or 'the Human Touch' as well.

In certain contexts, the Human Touch can be given in a direct personal way such as through local tutors or by central staff visiting students, or by requiring students to attend classes in local study centres or at the central campus itself. All of the five systems described in this report attempt to 'touch' directly in one or more of these ways, some much more successfully than others, depending a good deal on the quality of the staff involved and how well they demonstrate genuine interest in helping students with their problems. Such staff-student contacts should in general be maintained. Yet it is difficult to see how distance education systems on the scale that is becoming common in Asia, systems currently operating with (or being planned to reach) hundreds of thousands of students, can service the academic and social needs of their students effectively unless they devise ways of reaching out to individual students through the power of communications technology as well. For the numbers of staff required to service so many students may not only be prohibitive in terms of cost but it is unlikely that there will be sufficient qualified and committed staff available, either full-time or part-time, to recruit for these purposes, at least for the some decades to come. Clearly the provision of student support in a variety of ways through the media must be an urgent priority for both the extablished and the relatively new, even embryonic, distance education systems.

The 'massage', of course, can assume a variety of forms. It should be contained in the materials themselves, for example, in the conversational tone of the presentation of printed material such as study guides, audio and video cassettes or teletutorials, in the encouraging way that assignments are marked and commented upon and in the prompt and efficient way that such feedback is provided. It also should be reflected in the organisational and management aspects of a distance education system, for without a caring administration, much of the effectiveness of the learning packages will be lost. Indeed, unless the organisation aspects of the system really work well at all times and especially in times of great pressure, the objectives of course writers, producers and instructional designers will count for little. Yet there is a tendency for systems to commit so much of their resources to the production of materials and their mode of delivery that insufficient resources are available to create the complex infrastructure that is needed to underpin the teaching-learning process.

The increasing use of computers in the area of student support is an interesting example of how technology can humanise rather than dehumanise the learning experience in a distance education system. It is well known now that computers can be used for interactive learning, providing rapid feedback and yet allowing students flexibility in their study patterns and styles. They are now also being used as a basis for sophisticated and comprehensive student support systems, complementing personal tutorial and counselling services. The U.K. Open

University is now able to alert tutor-counsellors at any time throughout the year to potential student problems in terms of data held on its central computer file. The tutor-counsellor is able to interpret this information in the light of his or her accumulated knowledge of the student as an individual. Thus despite its large scale of operation, the O.U. is able to maintain a continuity of concern for its students, a characteristic that some would argue has been more responsible for that University's success than even the high quality of its course materials.

It is not intended to suggest that the Human Touch can only be effectively mediated or transmitted either through a 'low tech' approach of personal contacts between staff and students or by resorting to 'high' technology as sophisticated as a centralised computer system. Rather, the U.K.O.U. example demonstrates quite neatly that the choice should not be between using people *or* technology for supporting students but rather how best we can use people *and* technology in combination. In making such choices, there are several important issues to be considered.

5.3.2 Choosing the Media Mix: Old and New Forms

What is the best mix? the short answer is, of course, that there is no best mix *per se,* that each medium has its own characteristics which make it potentially useful in particular circumstances. The extent to which its potential is fully realised depends primarily upon choices being made in the light of an instructional design process. The quality of the educational process, then, depends more upon the expertise of the teaching team than on any inherent quality of the instructional media.

As far as the selection of media is concerned, the central concern in educational terms should be with trying to match the use of a range of media with an educational philosophy, course objectives, the nature of the subject matter, the assessment demands, particular teaching stategies and, most importantly, the students and their particular characteristics and needs.

Unfortunately, it is unlikely that any distance education system ever can enjoy the luxury of selecting media based purely upon educational criteria. Even if this were possible, the task would be difficult enough, for until there is a generally agreed, comprehensive and convincing theory of teaching and learning which can explain differences in how people learn from different media, the problem of selecting the right medium or mix of media will remain. But instead of educational philosophies and preferred teaching strategies determining the media that should be used, such criteria as availability, accessibility, acceptability and cost sometimes narrow the options so much that the technology determines the teaching strategy. In other words, the system becomes 'technology driven'. Despite these constraints, however, some choices can be made, as the diversity of our systems indicates.

The use of media in distance education may be thought of in terms of two dimensions:

a) the level of sophistication of technology to be used: *'the Tech'*
b) the extent to which the student will be encouraged to interact with staff and other students: *'the Touch'*

A particular medium might then be placed in a matrix showing on the one hand, its level of sophistication and, on the others, its interactive capability.

Some examples might clarify this form of categorisation:

Square 1. LOW TECH/LOW TOUCH: textbooks, printed notes and lectures, tape-slide kits, home-study kits.
Square 2. LOW TECH/HIGH TOUCH: audio cassettes, audio vision, teleconferencing, teletutorials.
Square 3. HIGH TECH/HIGH TOUCH: interactive radio, interactive video, computer-aided learning (CAL), electronic mail.
Square 4. HIGH TECH/LOW TOUCH: one-way radio and television.

Such categorisation without a particular context can be no more than approximate since it is the particular way that a medium is used and the part it plays in a mix of media that will determine how much it inspires interactive learning, provides encouragement, stimulates motivation and generally 'massages' the learner.

It stands to reason that the efficacy of any technological medium in providing the message and the massage will ultimately depend on the users, in the case of distance education, academic staff and students. Unless they are relaxed about using the technology involved in the programmes, have ready access to it and believe that it gives them better control over the management of learning from their different particular perspectives, then neither will exploit the technology to its fullest potential. In fact, it is almost certain that in these circumstances the learner will not use the medium in the manner that it was meant to be used and much of the effort involved in the designing of the learning package will have been wasted. Consequently, any training programme for staff (and students) ideally should provide opportunities for exposure to the media before new technologies become an integral part of the educational process. This will need specialist personnel, with technical skills and the interpersonal skills to introduce the idea of change into a system and to ensure that the intended beneficiaries of such change, the teachers and the students, are actually in a position to derive some advantage from the change. This cannot be done effectively on an *ad hoc* basis, yet there are few, if any, distance education institutions that can boast of system-wide staff development programmes specially oriented towards 'technological literacy'.

5.4 Issues of Management

5.4.1 The Issues Identified

The fundamental activities of conventional universities are teaching, research and public or community service, with teaching generally being accorded primacy in the eyes of the community but research output being by far the most important criterion for academic status and recognition by peers within higher education itself. A 'good' university will maintain a healthy tension between the two activities of teaching and research.

In open universities, there is no doubt that teaching is the prime function. Indeed, in some it is really the only function, especially in the early stages of development before either a research capability or public service in the broad sense can be organised. Furthermore, with the teaching and learning processes mostly separate in time and space (compared to classroom teaching), the emphasis in open universities is now more inclined to be on the notion of how the institution can best 'facilitate learning', in the many idiosyncratic ways that thousands of diverse students represent, than on teaching *per se*. In other words, distance education is (or should be) much more learner-centred than teacher-oriented and if this is to be the case, the teachers cannot expect to be perceived to have a role more important than management and student support services that underpin the educational process. This position has been summed up quite succinctly by Keegan (1980) thus: "In traditional education a teacher teaches. In distance education an institution teaches. This is a radical difference." By this he meant that the teaching process is no longer the exclusive responsibility of the subject-matter expert who traditionally has assumed authority; the responsibility has to be shared among those with specialist skills in such areas as instructional design, media production, publishing, computer programming, management, and so on. In the light of what has been said above, the statement might now best read, "In distance teaching it is no longer the teacher who teaches but the institution which facilitates student learning".

This notion of an 'institution' as a whole being responsible for the quality of the total learning process has tremendous implications for management of open university systems for unless the institution can function as a cohesive entity (unlike most conventional universities where the phrase 'participatory democracy of decision-making' is often an academic euphemism for 'loosely controlled anarchy') the teaching processes and the necessary student support functions will not operate as one integrated activity and this is necessary if distance learning is to be effective and stimulating rather than full of frustration and anxiety.

But distance learning is far more difficult to manage than classroom learning because the environment of the latter is much more easily controlled than the former. In a classroom setting, for example, development of a syllabus, the preparation of materials, organisation of the setting for learning, the co-ordination of auxiliary professional staff, the pacing of students and measurement of their progress are relatively simple tasks. On the other hand, the management of distance learning needs extensive research and strategic planning to make effective use of the many delivery techniques available; it has to 'organise' many thousands of people who all study and use materials on different time schedules and in different ways; it is required to co-ordinate the preparation of learning materials, their delivery to scattered populations and the provision of regional and tutorial services on scales that are rarely encountered in any other educational contexts; its control over students' learning activities is limited and heavily dependent on their self-motivation and self-discipline, while measures to assess student learning are rendered more difficult by time and distance and generally by a lack of regular personal contact with academic staff who will make that assessment.

In short, the management of learning in open universities requires the creation of a complex and interdependent system that needs leadership with vision, efficient and sensitive administration, and teamwork of a particularly high order. It was Clark Kerr, a luminary in the firmament of higher education in the United States, who once asserted that the staff of an open university should work not so much like that of a conventional university but rather like the project teams established by NASA for its manned space programmes. This was obviously written before the space shuttle tragedy that ended in the death of seven astronauts so it is necessary to add a few cautionary words. One of the lessons to be derived from that tragedy is that no matter how expert and dedicate the staff of an organisation in general may be, no matter how generous the funding and facilities, no matter how well planned and rehearsed the procedures, the strength of any chain is in its weakest link. Someone, somewhere did not attend adequately to one of the thousands of details that had to operate before 'all systems' could be safely declared "go!"

Most distance education systems, too, have their 'weak links' that can lead to operational 'disasters'. They are generally manifested in a lack of attention to detail in such aspects of management as the planning of structures, staff recruitment/training/development strategies, communication systems, administrative procedures, information services, and evaluation, to name just a few. And, in the final analysis, the responsibility for developing that 'eye for detail' in management at all levels of the organisation rests with its leader, one who by necessity has to lead by example and so virtually create an army of 'followers with leadership qualities' who share a vision and professional commitment. Before exploring this issue of leadership further, the issue of university autonomy which affects the efficacy of leadership should be discussed.

5.4.2 Institutional Autonomy

It needs to be stated from the outset that for 'leadership' to be able to manifest itself fully, those who are appointed to be leaders of an organisation need to be allowed a high degree of autonomy so that they can act quickly and effectively in the best interests of all who are being served by that organisation, without reference to outside interests. In the case of universities, the notions of 'autonomy' and 'academic freedom' are considered to be central to their proper operation. In the more particular context of distance teaching universities, the need for autonomy is certainly no less. Indeed, the senior administrators of a DTU need it a great deal more for, unlike conventional universities which often 'succeed' in spite of, not because of, their forms of management, a DTU cannot operate effectively as an academic institution without good management and that will not happen without leadership of the highest quality.

It is the reality that national DTU's are the creations of political will. The are therefore established with very specific terms of reference that shape their mission statements or broad educational objectives in socio-political terms and are very visible to the electorate at large as symbols of government action to redress educational deficiency or deprivation. It is not surprising, therefore, that only rarely are they left alone to get on with the job of educating the people in the most effective way that they see fit, albeit within the parameters that have been set for them. While no case study has explicitly made an issue of the adverse effects on management that a lack of autonomy may have had, or is still having, there is sufficient evidence in these studies to suggest that some of the fundamental educational difficulties being faced are the result of ill-advised political decisions imposed on the systems from the start. Furthermore, there are other problems which have been recognised by the institutions concerned and for which educationally defensible and cost-effective solutions have been identified but they have not been instituted because they are not politically acceptable.

This matter of autonomy has, one suspects, seldom been raised in other studies of distance learning systems because it is a sensitive issue and obviously could have deleterious effects on an institution which by such criticism might embarrass the government on whom it depends for financial survival.

The matter has been raised here, however, for two main reasons: firstly, attention needs to be drawn to the fact that to criticise the effectiveness of different elements of such distance education systems without knowing the extent to which management is free to determine how their systems should be designed and developed, is unfair to the managers and to the many dedicated staff who have to do their best to work within the systems suffering a great deal of frustration in the process because of their inability to operate fully as professional and give scope to their imagination and intelligence; secondly, this a plea to governments for greater autonomy for these institutions so that they can be better managed and therefore provide a richer and more satisfying learning experience for their students than has been possible so far.

The comments which follow are made in the hope, rather than the knowledge, that such autonomy already exists or there are plans for managers of systems to be given greater freedom of action in the near future. Only if such assumptions can be made, can talk of leadership and good management within an organisation have any real significance in practical terms.

5.4.3 Leadership

Managers of distance learning systems as complex and comprehensive as those described herein should ideally be leaders with deep concern for both production and people, two dimensions of management that have been described as 'initiating structure' and 'consideration' or might be described less formally as the 'what' and the 'how' of an organisation. Identifying 'what' has to be done and by when it needs to be done is a complex task in itself in a large-scale distance learning system as the case studies reveal, but it is a comparatively simple task when compared with that of deciding 'how' this might be done and by whom. In other words, managing people is more demanding than setting objectives and developing timetables. And it is more crucial to the success of the enterprise, for without the right people with the right attitudes to their work, the products will neither be of quality nor available on time, as has been demonstrated in the analysis section of this report. Consequently, most of the Issues of Management in this section are concerned with the second dimension, the 'how' of an organisation, that is, with aspects of people management. Without exception, this factor seems to need its own form of 'consideration' in all the systems represented by the case studies.

Assuming that our leader is both product and people oriented, what other characteristics should that person have if he/she is to develop a cohesive and effective organisation that has to operate partly as centralised and partly as a decentralised organisation, where thousands of staff, (full-time, part-time, academic, administrative, technical and clerical), need to work as an efficient and caring team? Firstly, if the team is to be efficient and caring, so must the leader, for 'leading by example' is the first essential. The efficiency aspect will be reflected in not only the product but also in the process so that caring how a job is done and who will be affected by this process are equally important. (The matter of process is discussed below under such headings as Staff Training and Development, Organisational Structures, and Communication and Co-ordination.)

While leaders may vary considerably in their physical qualities and personalities, there are certain characteristics that the chief executive officer of a distance education system simply must possess: a genuine belief in the concept of distance education in general and an unbridled enthusiasm for the mission of the university or institution in particular. For without these qualities it will be difficult, if not impossible, to lead by example, for the kind of leadership that such systems demand calls for a personal contribution by the chief executive officer that goes far beyond what is reasonable to expect of any one person. In the early stages of development in particular, the leaders of DTU's need to reflect something of the qualities of a hard-driving entrepreneur who can communicate excitement and release energy in other people so that those within the institution, as well as the community without, will come to share in that belief and support it with a similar commitment.

Indeed, 'commitment' is generally what distinguishes one effective distance learning system from an ineffective one. It is commitment that will enable a poorly planned and inadequately resourced system somehow to function reasonably well while another carefully planned and well-resourced system fails miserably to deliver the goods either in terms of products (quality learning materials) or processes (a dynamic, caring, interactive and academically-sound learning experience). So, what must a leader do, to achieve this all-pervading commitment, other than extol the virtues of his/her distance learning institution in a loud voice to whomever is willing and able to listen?

The motivation of staff is one of the most important aspects of leadership in any organisation. It is crucial in an organisation where so many activities depend on team work, where nearly everything is done under pressure of the clock and the calendar, where self-discipline of a professional kind is needed throughout the organisation down to the most junior levels if accuracy and reliability are to be manifested, and where there is a need to see one's role as an important cog in a vast machine that will break down if even one cog fails. Motivation cannot be separated from any aspect of management but it is certainly directly affected by staffing policies and practices associated with recruitment, induction, training and development, matters which are discussed below.

5.4.4 Staff Training and Development

The case studies generally reveal that many staffing difficulties begin with the recruitment of unqualified staff or, worse still, in some situations (usually where university autonomy is lacking), with staff imposed upon the system by secondment from schools and other governmental agencies or departments. In such cases, not only are many inappropriate appointments made in terms of competencies for a particular task, but the staff member concerned may be an unwilling 'volunteer' who is unlikely to bring either energy or commitment to the organisation. With such beginnings, the concept of motivation by the leader is a daunting one indeed and the only real solution lies in the organisation being able to advertise nationally for staff and attract the best by being in a position to offer favourable rates of pay and scope for professional initiative in an exciting and innovative educational environment.

If one begins with the central academic exercise of preparing learning materials as a member of a course team, the importance of having a carefully planned and implemented staff induction and training policy for academic staff is soon apparent. There is no doubt that the development of such learning materials and the experience of attempting to master this task in the unfamiliar context of a course team represent major innovations for the majority of academics in several ways: in terms of academic life-style, in teaching methodology and in new areas of responsibility and accountability. Teaching becomes a 'corporate' enterprise rather than an individual one; there is a feeling that a process is being bureaucratised. The subject specialist, instead of being the only cog in the teaching machine becomes one of many cogs. These changes constitute a threat to the ego, challenge previous training and appear to impinge on one's autonomy or academic freedom. Even more, the changes may be perceived as 'de-skilling' the academic by rendering previous experience inadequate or even irrelevant. In the circumstances, the implications for personnel management are enormous and senior executives ignore them at their peril. The situation becomes even more challenging when some of the most crucial members of a course team are from other universities and must be trained in the principles of course design before they can begin to make a contribution as a subject specialist.

In these circumstances, it is easy to understand why Lord Walter Perry, Foundation Vice-Chancellor of the U.K. Open University, was able to claim that the O.U. system "exists in a perpetual state of conflict" and could go on to say that "the sources of conflict cannot be eliminated and it is a mistake to try, although management should ensure that conflict does not become destructive" (Perry, 1976).

It follows therefore that any attempt to develop materials for distance teaching must be related to the individuals involved in the innovation. The implications for a staff development strategy might be summed up as follows:

a) Recognise that a change to an unfamiliar teaching mode affects human beings who have effectively been 'de-skilled'.

b) Accept as legitimate the self concerns of individuals worried about the personal impact upon them.

c) Recognise that staff development programs need to be highly adaptive and patterned according to the developmental stages which individual academics, departments and faculties or schools have reached.

d) Acknowledge that because of the human factor any change will rarely end up being what it started out to be or how the staff developer of instructional designer initially perceived it.

With such a human approach to staff development, productive working relationships can be created to improve one's teaching as part of a team and the exercise does not appear to be so totally product-driven like some industrial process that has little or no regard for those responsible for what comes off the 'assembly-line'.

The training and development of staff in the use of technology can also be used as an example of 'the human approach', a recognition of the dynamics involved in introducing people to unfamiliar experiences or attempting to effect changes. Distance education systems in particular must face up to the fact that most of their staff will come to them 'de-skilled' and therefore more than a little insecure about their lack of knowledge and experience of the new organisation. This means that there is a need for formal and informal leaders who will be the change agents or facilitators within the group. They may come from within the organisation or from without. Whether they are the senior administrators or staff development offices or outside consultants, their function is the same: to assist users and non-users on the innovation, both individually and in groups, to enhance their confidence and competence in the adoption of the innovation. The role of the change agent is therefore an extremely critical one calling for a high degree of skill in managing interpersonal relationships, as well as being adaptable and sensitive to subtle changes in the level of concern through which the users of an innovation commonly progress.

To introduce information technology into a distance teaching system, for example, an institution needs to examine the possibility of applying the technology to the whole range of its activities. This means looking not only at its teaching activities but also at its research, administration, consultancy and staff development activities. Introducing new technology does not mean discontinuing the use of existing forms of communication such as print material, telephone, cassettes or face-to-face meetings. The new technology may lead to a decrease in the use of some of these traditional forms of communication but generally *the real test is whether the new technology enhances the existing modes of communication*. If we need assurance on this score, we should reflect upon the fact that information technology is being applied above all to the very traditional medium of print, storing and moving it and associated data around the world.

Although this approach has a special relevance to the role of academic staff in distance teaching systems, the importance of the individual as a critical cog in the machine must be recognised in the induction, training and development of all staff, whether they be academic, administrative or technical, based at headquarters or in the regional units, working full-time or part-time. To leave such personnel management matters to chance is almost to guarantee the creation of an organisation without 'organisation' or cohesion, to ensure virtually that authority will not accompany responsibility, that there will be little sense of direction and that morale will suffer. In such circumstances, organisational structures remain just that and never really become transformed into dynamic processes that actually work as they were designed to do.

5.4.5 Communication and Co-ordination

Converting a structure to an effective working organisation is a matter of co-ordinating all the functions so that they operate in support of each other towards a common objective. The critical factor in this process is the effectiveness of communication.

In a distance education system, the communication process has to be highly developed to operate at several levels and with different functions and receiver groups in mind: within the central campus or headquarters itself, between it and the regional units or centres (or in the case of CRTVU, between CRTVU and the PTVU's), among the units of the decentralised regional network, between full-time and part-time academic staff, between central and regional staff and students, among the students and between the institution and the community, sometimes aiming at target groups, sometimes at the community in general. This, admittedly, is as complex an operation as it sounds but if any of these communication networks are deficient, it is unlikely that the ultimate product, the student's learning experience, will be a satisfactory one.

Within the central structure, the leader has a responsibility, as has been suggested, to lead by example, by being efficient and caring (concern for the product and concerned with the human process that is involved in achieving the end result). In terms of both these dimensions, he/she will, for example, be seeking to define areas of responsibility clearly, encourage positive exercise of authority with responsibility and ensure that there are effective lines of communication. This might be achieved by ensuring that instructions, requests for information, reports and requisitions are carefully directed through the formal channels of the organisation: that is, communication *downwards* passes first through the most senior staff member bearing the relevant responsibility and communication *upwards* from a staff member passes first through that member's most immediate supervisor. Reports, formal written papers and other forms of professional initiatives from staff members should be encouraged by senior management who should give prompt consideration to them so that a response is forthcoming in which reasons for either total or partial acceptance or rejection are given or a request made for further information to assist in decision-making. Delegation of responsibility should also mean delegation of authority to act in that area of responsibility with a degree of autonomy as determined in advance between the parties concerned. It should also imply that an appropriate form of regular reporting of progress and achievement is in place. Furthermore, the level of professional activity required of staff members should also be commensurate with their qualifications and experience. Nothing lowers morale more quickly than having one's contribution diminished by being asked to perform routine tasks (which could be done by a more junior member of staff) that tend to divert attention away from the more creative and demanding activities for which one is qualified to undertake. Conversely, the effects on the system could be even more devastating if staff members are allotted tasks for which they are not equipped. The twin issues of under-employment and over-employment are constantly a challenge to management which must attempt to reconcile individual abilities with job specifications and evaluate performance so that such reconciliation is based on concrete evidence and not mere intuition.

Perhaps the most demanding communication link is that which should operate between the central administration and the units that comprise the regional network. As mentioned previously, this link does not appear to have been very strongly forged as yet in any of the three open universities, although the structures are in place and being developed so that they can accept more responsibilities and act with more autonomy as the systems expand. So much will depend on how well the communication channels are developed, not the least important function being to keep the regional networks fully informed of policies, together with procedures for implementing them, as well as the regions reporting regularly and comprehensively to headquarters to allow meaningful evaluation of their performance to be undertaken.

Clearly, the computerisation of administrative processes and records is crucial to such monitoring of decentralised services. Any large-scale distance education system that has to depend on such services being rendered by regional centres or units and does not have an efficient and reliable computer system for such purposes has simply got 'the cart before the horse' and progress will be as disappointing as that form of transport generally is. The same may be said of communication among the units of the regional networks, for in this day and age, the scale of DTU's in Asia makes it imperative that administrators can 'talk' to one another through computers so that procedures can be standardised, up-to-date records are maintained and information easily processed and distributed to a wide range of recipients whose groupings are constantly changing. It is no coincidence that the system that appears to have the least functional regional network is anxiously awaiting the installation of a computer that is adequate for the task required of it.

The case studies collectively suggest the more needs to be done to make more useful connections between full-time academic staff at the centre and part-time tutor-counsellors in the regions, so that the expectations of the former can be more clearly translated to the regional tutors and the latter's performances more carefully evaluated to ensure that students' needs are being met. The strategy adopted by the U.K. Open University to counter this problem has been successful enough to survive almost twenty years with little change. It is one which is worthy of consideration in other contexts as it is a low-tech solution that can be concerned simultaneously with product and process. It comes in the form of a Staff Tutor who shares time between the central campus and a particular region, interpreting one to the other and building bridges between them before a chasm threatens to open up.

Communication between staff and students has been discussed at some length in various sections of the report. Suffice to say at this point that 'communication' in this context is mainly centred upon devising academic ways of interacting: assignments, discussion groups and tutorials, other personal contact programmes, interactive learning materials and facilities like computers and telephone tutorials. But it has also been explained under the heading, 'Administrative Processes', that clear communication channels need to be created for students to be able to contact administrative functionaries as well, and at the least cost to themselves. There could well be a need for creating a department or division on the central campus that has an exclusive function of 'trouble-shooting', mainly for students but also for staff in the regions. IGNOU's Regional Services Division may include such a prototype but few large-scale systems seem to have a central student advisory service so delineated.

As an aside, it is perhaps worth noting that at the University of New England in Australia, of the 40 administrative staff in the Department of External Studies, at least six highly qualified graduate staff are busily engaged almost exclusively in problem-solving activities on behalf of students who total in all just over a mere 6,000! And this is considered necessary despite the fact that the system has been running successfully for almost 35 years and has a reputation second to none for its ability to retain students and have them perform as successfully as the internal full-time students with whom parity of standards can be demonstrated.

Finally, there is an obvious need to communicate with members of the community who are not enrolled students, firstly to raise their awareness of the opportunities that the system can offer, secondly to inform them of what the institution is doing and what its achievements are, and thirdly to seek their support, both moral and in more tangible ways. This role of public relations and publicity has in some cases been developed to a high level, and that is as it should be, provided that institutional claims can be matched by actual performance and the resources expended upon this form of communication are not so generous as to reduce the funds available to other forms of communication that are so necessary for the co-ordination of the system as a whole.

5.4.6 Evaluation

Evaluation in an educational system or elsewhere essentially includes three steps: measuring, comparing and correcting. Each presents special problems for the distance teaching university system but senior management cannot afford to avoid the processes just because of inherent difficulties.

Measuring effectiveness in such a system is, as previously indicated, concerned with the quantity and the quality of learning. Quantity can be related to enrolments and student performance, as well as the number of programmes developed. Quality can be reflected in the learning materials, their forms of delivery, the effectiveness of support systems and the performance of students at examinations, and in the longer term, the quality of their graduates measured by their acceptance by the community, especially in the market-place. In some respects, theoretically at least, quality of learning materials should be guaranteed by a team approach to course development (because of its inbuilt self-critical processes that are generally absent from the preparation of lectures and tutorials by an individual academic staff member in a conventional university), but the reality is that unless the course team approach as planned actually operates, no such guarantee can be given and distance learning materials can vary alarmingly in quality.

The second aspect, that of 'comparing', presents the single-purpose distance teaching or open university with a very practical problem: with what or whom should a comparison be made? For a dual-purpose or integrated distance university that is characteristic of several countries such as Australia, Canada, Malaysia, New Zealand and Zambia, for example, a 'bench-mark' for comparison is ready-made in that these institutions enrol both internal and external students in the same courses and have them taught and examined by the same full-time academic staff. Consequently, parity of standards can be demonstrated so that, provided external students are being satisfactorily retained during each academic year and they are performing at examinations as well as internal students, there is some reassurance that the distance education system is operating satisfactorily. Unfortunately for open universities that teach exclusively at a distance, they must look for other standards for comparative purposes and it is naturally tempting to borrow standards from conventional universities. Such comparisons are seldom appropriate and need to be made with great caution, especially if the standards of the conventional systems are very variable as they are in many countries, developed or developing.

Though evaluative processes should be ongoing within a system, the third step of 'correction' needs to be applied carefully as the integrated nature of the functions of a distance education system can mean that what was intended as a minor change can have an extensive ripple effect that may adversely effect elements in the system that were functioning effectively. Neither students or staff appreciate constant change or having a large number of variables changed at the one time. Changes on a large scale might be justified, however, if after evaluation of the system or a sub-system, it was found that dramatic, even traumatic, changes were necessary to rescue the system from disastrous consequences. One could only suggest that if such circumstances were to arise, the process of evaluation had been left in abeyance all too long and the serious nature of the deficiency should have been detected much earlier. Conversely, of course, the implications of no change in such systems are no less justified.

From the point of view of management, the process of evaluation in such complex systems as DTU's represent must be given a much higher profile than it currently enjoys in most new and developing systems of this kind to date. Rather than it being perceived as 'a luxury that cannot yet be afforded', it needs to be regarded as an essential element in the education cycle and be resourced accordingly. But senior management needs to give direction as to what the priorities for the evaluative processes ought to be so that research and development divisions are not simply created to enhance an organisational chart in the office of the Vice-Chancellor or President but are established because there is a need for an expert body of professionals to review continually all aspects of the system, to constantly be seeking evidence that will enable objective assessment to be made and rational decisions to be taken about remedial measures.

In the light of the experiences of the systems described in the case studies, senior managers and administrators might agree that the time is right for 'Issues of Management' to be given as high a priority for evaluation as the central academic processes.

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APPENDICES

APPENDIX A

TOWARDS A METHODOLOGY

(A Framework for A Study of Five Asian Institutions Making Large Scale Use of Communications Technologies for Educational Purposes)
– Prepared by Kevin Smith, President ICDE, September 1987

It is suggested that the provision of information for such a survey take at least three forms.

- a) guided description
- b) questionnaire-type responses
- c) statistical analysis

Examples of a) and b) are provided as Attachments B and C respectively. Section D of the study, "Costs", and Section E, "Educational Outcomes", lend themselves to some form of statistical reporting and/or analysis.

To assist in selecting the areas for special attention and the form that the collection of information might take, a more detailed version of a suggested study is provided below:

A. THE CONTEXT

1. National Profile
   - a) geography
   - b) population/demographic trends
   - c) economic features
   - d) communications infrastructure

2. Educational Profile
   - a) conventional provision
   - b) non-traditional provision
   - c) unmet demand
   - d) options for meeting the demand

3. Your Instituion
   - a) its general mission statement
   - b) its specific objectives
   - c) essential policy guidelines
   - d) relationships with governments and other agencies

B. INPUT: SYSTEM DESIGN

1. Planning and Establishment
   - a) the planning exercise (time frame and constraints)
   - b) external support systems
   - c) physical infrastructure (initial site, buildings, equipment etc.)
   - d) initial intakes/enrolments
   - e) the first programmes

2. Organisational Structure
   - a) decision-making structure (management)
   - b) organisation and functions (admin.)
   - c) staffing profile and staff origins
   - d) budgets (capital and recurrent)

3. Growth and Development
   - a) development of courses and programmes (continuing and new)
   - b) student profile (educ. quals, location, age, sex ratios, occupations etc.)
   - c) physical infrastructure
   - d) indicators of qualitative development (e.g. staff development programmes, more sophisticated methods and media, improved student support systems, acceptance of graduates.)

C. EDUCATIONAL PROCESS

1. Course Development (Structure and Functions)
   Academic
   - a) model of preparation and design
   - b) course team composition
   - c) educational philosophy
   - d) media selection and their use
   - e) course writing and design (the process)
   - f) evaluation procedures
   - g) monitoring and maintenace
   - h) responsibility for standards
   - i) staff development programmes
   - j) research in DE methods
   - k) developmental changes

   Technical Production
   - a) staff numbers and specialist skillls
   - b) scheduling
   - c) quality control
   - d) handling production and distribution problems/enquiries

2. The Teaching/learning Process (General Description of Process)
   - a) who teaches? who assesses? who supports?
   - b) elements of independent study
   - c) elements of interaction (with staff and other students)
   - d) mixing the elements of independence and interaction
   - e) assessment (assignments) and exams
   - f) pacing mechanisms to maintain student progress
   - g) other characteristics of the teaching/learning process

3. Delivery of Course Materials
   - a) use of the media: standard 'mix' and variations-rationale for selection
   - b) distribution methods for materials for surface transport
   - c) broadcasting (radio/TV): schedules, student access, use by students
   - d) general assessment of effectiveness of b) and c) above: achievements and limitations
   - e) research and evaluation: results of projects
   - f) developmental changes and priorities for changes

4. Communications
   - a) use of the media other than as above (e.g. assessment, student support, administration and management, publicity/information, enrolment, other services)

5. Student Support (academic)
   - a) tutoring and counselling: by whom? where? when? about what? what qualifications for staff?
   - b) tutorial and practical classes/field work
   - c) residential and other personal contact programmes
   - d) self-help groups
   - e) visits by staff to local centres
   - f) library services
   - g) study centres: functions, facilities, access and use
   - h) responding to student enquiries
   - i) assignments: types, frequencies, feedback (what type and turnaround time)
   - j) monitoring student progress: systems and outcomes
   - k) research and evaluation of support systems (programmes and results)
   - l) other forms of two-way communications (e.g. teleophone tutorials, interactive radio etc.)
   - m) developmental changes in support systems

6. Student Support (administrative services)
   - a) publicity, information services, enquiries
   - b) admission/enrolment procedures
   - c) fees collection
   - d) student records
   - e) administration of exams
   - f) coordination of study centres
   - g) other

7. Research and Development
   - a) research needs and priorities
   - b) current academic research projects
   - c) organisational structure for institutional research
   - d) strategies for monitoring and evaluating the total system (current and planned)
   - e) other

D. COSTS

See attached the revised form of Orivel paper: *Analysing Costs in Distance Education Systems: A Methodological Approach*

E. EDUCATIONAL OUTCOMES

1. Student Performance
   - a) enrolments (progressive)
   - b) retention rates
   - c) completion and pass rates
   - d) number granted awards (degrees & diplomas)
   - e) other of student achievements
   - f) general evaluation of overall results
   - g) comments on meeting institutional goals (e.g. reaching target groups, meeting manpower planning needs, reducing disadvantage)

2. Programmes, Materials and Services
   - a) availability to other institutions/systems, nationally and internationally
   - b) plans for future extension of expertise and services

3. Changes in Educational philosophy and Practices
   - a) effects on conventional educational systems
   - b) influence on non-traditional educational systems

4. Impact on Society at Large
   - a) "Eavesdropper" (unintended audiences)
   - b) increasing awareness of educational opportunity outside conventional systems
   - c) raising intellectual quality of broadcast programmes
   - d) other

F. THE FUTURE: TRENDS AND PRIORITIES

DATA SHEET (1)

A. CONTEXT

1. National Profile

Describe such features as:

a) *geoprahical:* area, climate, communications infrastructure.
b) *demographic:* size of population, distribution, growth, trends.
c) *economic:* land use, main sources of wealth, employment situation, manpower needs.
d) *political:* system of government, policies re education.

2. Educational Profile

Describe:

a) *conventional educational provision* (full-time) : primary and secondary school system, vocational training, higher education (colleges, universities and institutes), literacy situation, national priorities for full-time education.
b) *non-traditional provision* (distance education, continuing education.): clientele, programmes, delivery systems, enrolments, trends.
c) *unmet demand:* estimates of numbers, levels most affected, type.

3. Your Institution

Describe:

a) *General mission statement.*
b) *Specific objectives.*
c) *Essential policy quidelines.*

4. Other Comments

....

....

....

66

DATA SHEET (2)

B. INPUT: SYSTEM DESIGN

1. Planning and Establishment

a) *When was planning begun?* ....

b) *When was the institution established?* ....

c) *When were the first students enrolled?* ....

d) *How many students were enrolled in the first intake?* ....

e) *How many applications were refused?* ....

f) *What were the first programmes and subjects to be offered?* ....

2. Organisational Structure and Functions

a) *Outline the organisational structure of your system* indicating relationships between the central institution and decentralised elements such regional institutions or support systems (if applicable) and the functions carried out by constituent parts of the system. Also indicate, where possible, the status of the staff concerned (e.g. full-time, part-time, contracted or tenured, academic or administrative).

b) *Who in your system (as described above) has responsibility for the following functions?*
- Planning academic programs (e.g. degrees and diplomas)
- Planning and designing individual courses (e.g. English Language, Mathematics)
- Writing individual courses
- Technical physical presentation/production of teaching material
- Evaluation of teaching material
- Tutoring students
- Counselling students
- Marking assignments
- Setting examinations
- Marking examinations

c) *What proportion of course writers are:*

(i) *full-time academic staff of your institution?* ....

(ii) *academic staff contracted from other institutions?* ....

d) *From where are the following staff recruited and what qualifications do they require?*

- tutors..
- counsellors..
- assignment markers ....
- examination markers ....

e) *What is the approximate size of the annual or recurrent budget of your institution or system?* (Express in $US dollars)

f) *What are the sources of revenue contributing to this budget?* Indicate percentages for the following categories:

	%
• government funding	....
• student fees	....
• sale of materials or services	....
• private donations	....
• other (please specify)	....

g) *Indicate the proportions of your budget spent annually on:*

	%
• full-time academic staff	....
• part-time teaching staff	....
• production of teaching materials (all media)	....
• delivery of materials (broadcasting, mailing etc.)	....

- administration ....
- other (please specify) ....

h) *What is your estimate of the proportion of staff costs in the overall annual budget?* ....%

3. Growth and Development

a) *How many programmes (degrees and diplomas) are now offered?* ....

What are they? (Attach a list if necessary) ....

b) *What subject areas are now taught?* ....

....

....

c) *How many individual courses or units are now offered?* ....

d) *Provide a student profile showing:*

(i) growth in enrolments since the initial intake.
(ii) numbers and entry qualifications of students in the various programmes.
(iii) distribution by age, sex, marital status, occupation, location.

e) *What indicators of qualitative improvement over the years can be identified?*

....

....

DATA SHEET (3)

C. EDUCATIONAL PROCESS

2. Delivery: Methods and Media

a) *Which is the general teaching method preferred by your institution?*

- Solely distance teaching, no face-to-face
- distance teaching, supplemented by irregular and brief face-to-face sessions
- distance teaching and face-to-face teaching of equal importance
- face-to-face teaching supplemented by distance teaching material
- other (please specify)

b) *If face-to-face sessions are offered, list the different types and indicate which are voluntary (V) and which are compulsory (C).*

c) *Indicate in the matrix diagram below, the media used in the teaching of the different subject areas and your estimate of the percentage that each of the media used in the mix represents.* (e.g. If only print is used, show 100% in the appropriate square; if radio represents a quarter of the teaching package, show 25%, and so on. Each vertical column should total 100%.

	SUBJECT AREAS (see list below)											
MEDIA	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
• printed material												
• audio tape												
• video tape												
• radio												
• T.V.												
• film												
• slides												
• computers												
• telephone tutorials												
• face-to-face tutorials												
• other (please specify)												

Subject areas:
1. Education, teacher training
2. Humanities, social sciences
3. Languages
4. Music and Fine Arts
5. Legal professions
6. Business Studies
7. Engineering/Technical
8. Science/Mathematics
9. Health Sciences
10. Agriculture
11. Computer Science
12. Other

d) *Who chooses the media-mix for each course or unit?* (Tick where appropriate.)
- the course author independently
- the course team which includes the author
- instructional design staff
- the institution lays down a standard media formula for all courses
- other (please specify)

e) *How important are the following criteria in determining the selection of media in your institution?* (Insert a number form 1 to 5 beside each dot, 1 indicating "of great importance", 5 indicating "of least importance".)
- availability of technology
- accessibility to students
- acceptability to teachers
- acceptability to students
- suitability for the subject matter
- cost

f) *How does your institution assess students?*
- totally by written examination at the end of a course or unit
- by two or more written examinations during the course
- partly by examination and partly by assignments
- totally by assignments

g) *If students are assessed partly by examination and partly by assignments, what proportion of the assessment is allocated for each?*
- Percentage by examination ....%
- Percentage by assignment ....%
- Percentage by other forms ....%

h) *Where are examinations held and who supervised their conduct?*

....

....

i) *To whom are assignments sent for marking?*

....

....

j) *Which are the most common from of assignments?*
- short open questions
- multiple-choice questions
- short essay on a set topic
- longer essay (e.g. 1000 words or more) on a set topic

APPENDIX B

COST ANALYSIS QUESTIONNAIRE – by Chris Curran

Staff resources

How many staff are employed by your institution in distance education?

Number of Staff.

Whole-time professional staff?

1. ____________

Whole-time staff are those employed full-time on activities directly related to distance education;

Examples of professional staff includes course writers, editors, instructional designers, audio and video producers, tutors, teachers, managers of study centres, regional staff, student counsellors.

Number of Staff

Whole-time support staff?

2. ____________

Examples of support staff includes administrative, secretarial and clerical staff, printers, drivers, and security personnel.

Number of Staff

Part-time professional staff?

3. ____________

Part-time support staff?

4. ____________

Part-time staff are all other staff e.g. part-time tutors and counselors, academic consultants, commissioned course writers and editors, and-in dual-mode institutions-whole-time staff engaged part-time in distance education

In the most recent year how much was paid in:

Amount Paid

Salaries to whole-time staff?

5. ____________

Salaries to part-time staff?

6. ____________

Salaries include gross payments to staff (i.e. before deductions for tax, superannuation or other items). The sum should include additional payrelated expenditure such as employer's social-welfare contributions.

Amount Paid

All other payments to whole-time staff?

7. ____________

All other payments to part-time staff?

8. ____________

Other payments include items such as travel and subsidence expenses, grants, bonuses, or subsidies paid to staff.

Are external staff available at no cost to distance education?

Please tick appropriate box

		Yes	No
Professional staff?	9.	☐	☐
Support staff?	10.	☐	☐

Examples of external staff, available at no cost to distance education, might include academic staff from other institutions participating in course teams, or acting as external examiners; or producers in national broadcasting authorities providing their time or services at no cost to distance education.

If so, how many hours were worked in a recent year?

Number of Hours

Professional staff?

11. ____________

Support staff?

12. ____________

Hours are the total unpaid time external staff have spent on distance education activities, in the most recent year for which data is available.

Recurrent expenditure

In the most recent calendar year how much was paid for:

Amount Paid

Course materials purchases?

13. ____________

Example of course material purchases include the bying-in of texts or other course materials from external institutions; and the purchase of raw materials-such as paper, blank audio or video tapes-for 'in-house' production.

Amount Paid

External production of course materials?

14. ____________

External production should include costs such as external printing, and the production of audio or video tapes.

Amount Paid

Fees for access to external facilities?

15. ____________

Fees for access to external facilities might include charges for radio or television transmission, access to satellite channels, fees to external institutions used as regional/local centres.

		Amount Paid
Administration? *Administration charges should include items such as stationery, photocopying, office supplies.*	16.	____________

		Amount Paid
Telephone?	17.	____________
Post?	18.	____________
Fees or other payments to parent institution?	19.	____________
All other (non-salary) recurrent expenditure? [Please specify]	20.	____________

Accommodation

In respect of accommodation/building space in your own institution:

- **What area is used exclusively for distance education? (a)**
- **What area is shared with other users? (b)**
- **For how much time is the shared space used for distance education? (c)**

		(a) Area	(b) Area	(c) Percent
Offices?	21.	[____]	[____]	[____]
Classrooms and lecture theatres?	22.	[____]	[____]	[____]
Laboratories?	23.	[____]	[____]	[____]
Libraries?	24.	[____]	[____]	[____]
Stores?	25.	[____]	[____]	[____]
Printing and text production?	26.	[____]	[____]	[____]
Audio, video, radio and TV studios?	27.	[____]	[____]	[____]
Ancillary space?	28.	[____]	[____]	[____]
Other? [Please specify]	29.	[____]	[____]	[____]

Please tick appropriate box

		Yes	No
Is accommodation/building space available in other institutions at no cost to distance education?	30.	[____]	[____]

Example of external space available at no cost to distance education, might include the use of classrooms and laboratories for face-to-fare sessions; or studios in national broadcasting stations for which no fees are paid.

In respect of space provided free in other institutions:

- **What area was used for distance education? (a)**
- **For how many hours was it used? (b)**

  Hours are the estimated total unpaid time for which accommodation/building space, in other institutions, was used for-and at no cost to-distance education, in respect of the most recent year for which data is available.

- **If not used for distance education, would the area have been used for some other activity? (c)**

  Other activities might include part-time courses, or the production of other TV or radio programmes.

		(a) Area	(b) Hours	(c) Yes	No
Offices?	31.	[____]	[____]	[__]	[__]
Classrooms and lecture theatres?	32.	[____]	[____]	[__]	[__]
Laboratories?	33.	[____]	[____]	[__]	[__]
Libraries?	34.	[____]	[____]	[__]	[__]
Stores?	35.	[____]	[____]	[__]	[__]
Printing and text production?	36.	[____]	[____]	[__]	[__]
Audio, video, radio and TV studios?	37.	[____]	[____]	[__]	[__]
Ancillary space?	38.	[____]	[____]	[__]	[__]
Other? [Please specify]	39.	[____]	[____]	[__]	[__]

Equipment

In respect of equipment in your own institution:

- **What is the value of equipment used exclusively for distance education? (a)**
  Value should be taken as the capital cost at the time of purchase. Only equipment in our own institution should be included.
- **What is the value of equipment shared with other users? (b)**
- **For how much time is the shared equipment used for distance education? (c)**

		(a) Value	(b) Value	(c) Percent
Mainframe computers?	40.	[____]	[____]	[____]
Microcomputer?	41.	[____]	[____]	[____]
Television and video equipment?	42.	[____]	[____]	[____]
Radio and audio equipment?	43	[____]	[____]	[____]
Printing and text production?	44.	[____]	[____]	[____]
Teaching and laboratory equipment?	45.	[____]	[____]	[____]
Transportation vehicles?	46.	[____]	[____]	[____]
Furniture and office equipment?	47.	[____]	[____]	[____]
Other?	48.	[____]	[____]	[____]
(Please specify)				

In respect of equipment to which free access is provided by other institutions:

- **What is the value of the equipment? (a)**
  Value should be taken as the capital cost at the time of purchase.
- **For how many hours was it used? (b)**
  Hours are the estimated total unpaid time for which equipment, in other institutions, was used for-and at no cost to-distance education, in respect of the most recent year for which data is available.
- **If not used for distance education, would the area have been used for some other activity?**
  Other activities might include part-time courses, or the production of other TV or radio programmes.

		(a)	(b)	(c)	
		Value	Hours	Yes	No
Mainframe computers?	49.	[____]	[____]	[___]	[___]
Microcomputers?	50.	[____]	[____]	[___]	[___]
Television and video equipment?	51.	[____]	[____]	[___]	[___]
Radio and audio equipment?	52.	[____]	[____]	[___]	[___]
Printing and text production?	53.	[____]	[____]	[___]	[___]
Teaching and laboratory equipment?	54.	[____]	[____]	[___]	[___]
Transportation Vehicles?	55.	[____]	[____]	[___]	[___]
Furniture and Office equipment?	56.	[____]	[____]	[___]	[___]
Other?	57.	[____]	[____]	[___]	[___]
[Please specify]					

Courses Presented

In respect of the distance education course provided by your institution:

- **How many do you currently present?** 58.____________________
- **How many of these are credit courses?** 59.____________________
  Examples of courses leading to credit include: courses at tertiary level leading to degree, diploma or certificate qualification, awarded by the distance teaching institution or an external university or other accrediting agency.
- **How many courses have been bought-in?** 60.____________________
  Bought-in courses are those substantially based on materials acquired from other institutions-whether for a fee or otherwise; it includes courses which have been subject to a moderate amount of internal adaptation.
- **How many courses have you presented to date?** 61.____________________

Methods/Media

In respect of the methods/media listed below:

- **Are they used in your institute? (a)**

In respect of those used in your institute, in the most recent year:

- **In how many courses was each used? (b)**
- **For how many hours was each used? (c)**

  Hours are the average use by a typical student (as envisaged in the course design), averaged across the courses in which this medium/method is used.

- **How many man-years of professional staff time was involved? (d)**

  Man years is the sum of the time spent by whole-time and part-time staff on activities directly related to the particular method/medium. The sum should be expressed in equivalent (whole-time) man-years. Only staff paid from the distance education budget should be included.

- **How many man-years of support staff time was involved? (e)**
- **What was the amount of direct recurrent expenditure involved? (f)**

  Recurrent expenditure should include all non-salary and non-capital payments directly related to the particular item. Typical expenditure might include: materials purchases, costs of external production, and fees for access to external facilities-e.g. study centres in other institutions, broadcasting networks-insurance and maintenance of equipment.

		(a)		(b)	(c)	(d)	(e)	(f)
Face-to-face:		Yes	No	Courses	Hours	Years	Years	Amount
Attendance at study centres?	62.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Residential schools?	63.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Practical/laboratory sessions?	64.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Print:								
Printed texts?	65.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Audio:								
Audio tape?	66.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Audio record?	67.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Compact disc?	68.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Compact tape?	69.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Video:								
Slides?	70.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Video tapes?	71.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Film?	72.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Filmstrip?	73.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Videodisc?	74.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Phone:								
Telephone (one-to-one)	75.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Telephone-conferencing?	76.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Radio:								
National radio?	77.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Local radio?	78.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Television:								
Open broadcast television?	79.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Cable television?	80.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Satellite television?	81.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Microwave television?	82.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Slow-scan freeze-frame TV?	83.	[___]	[___]	[____]	[____]	[____]	[____]	[____]
Tele-text?	84.	[___]	[___]	[____]	[____]	[____]	[____]	[____]

Computer:

Computer assisted instruction?	85.	[___]	[___]	[___]	[___]	[___]	[___]	[___]
Computer managed learning?	86.	[___]	[___]	[___]	[___]	[___]	[___]	[___]
Computer with videotape?	87.	[___]	[___]	[___]	[___]	[___]	[___]	[___]
Interactive videodisc?	88.	[___]	[___]	[___]	[___]	[___]	[___]	[___]
Viewdata?	89.	[___]	[___]	[___]	[___]	[___]	[___]	[___]

		(a)		(b)	(c)	(d)	(e)	(f)
		Yes	No	Courses	Hours	Years	Years	Amount
Electronic mail?	90.	[___]	[___]	[___]	[___]	[___]	[___]	[___]
Computer conferencing?	91.	[___]	[___]	[___]	[___]	[___]	[___]	[___]
Computer with videotape?	92.	[___]	[___]	[___]	[___]	[___]	[___]	[___]
Other:								
Library services?	93.	[___]	[___]	[___]	[___]	[___]	[___]	[___]
Regional support services?	94.	[___]	[___]	[___]	[___]	[___]	[___]	[___]
Home kits?	95.	[___]	[___]	[___]	[___]	[___]	[___]	[___]
Other?	96.	[___]	[___]	[___]	[___]	[___]	[___]	[___]
[Please specify]								

In respect of distance education courses presented by your institution, how many persons:

- **Are currently registered as students? (a)**
- **Have ever registered as students? (b)**
- **Registered as new students in the most recent year? (c)**
  New registrations are persons registering as distance education students, who were not registered in the previous twelve months.

		(a) Number	(b) Number	(c) Number
Credit courses?	97.	[___]	[___]	[___]
Non-credit courses?	98.	[___]	[___]	[___]
All courses?	99.	[___]	[___]	[___]

In what year were student first registered? 100. Year ____________

Awards

		Yes	No
Are the credits awarded (solely or jointly) by your institution?	101.	[___]	[___]

If not, what institution makes the award? **Name of Institution**

How many students have completed courses and received the awards listed below:

Include all distance education courses presented by your institute.

- **In all to date? (a)**
- **In the most recent Year? (b)**

		Number	Number
Post-graduate awards?	102.	[___]	[___]
Degree awards?	103.	[___]	[___]
Diploma awards?	104.	[___]	[___]
Certificate awards?	105.	[___]	[___]
Other awards?	106.	[___]	[___]
[Please specify]			

Funding

In respect of the most recent year how much was received from the following sources:

- **As direct funding? (a)**
- **As indirect funding? (b)**

Public Funding:

Examples of indirect public funding include financial support to other institution for the provision of services to distance education students (e.g. television programmes or library facilities; or grants and subsidies to students in respect of their participation in distance education.)

		Amount	Amount
Central government sources?	107.	[____]	[____]
Local government sources?	108.	[____]	[____]
Other public authorities [Please specify]	109.	[____]	[____]

Private Funding:

Examples of private funding include grants, sponsorship etc. by private companies or individuals for distance education in your institution

Examples of indirect private funding include the payments of salaries and emoluments by companies, to their employees, in respect of time devoted to distance education.

		Amount	Amount
Private companies?	110.	[____]	[____]
Non-governmental community organisations?	111.	[____]	[____]
Others? [Please specify]	112.	[____]	[____]

Student/User Funding:

Student/user funding include course and examination fees

Examples of indirect student funding include: necessary addtional costs involved in participating in distance education courses or receiving course materials such and accommodation expenses incurred in participating in residential schools; the purchase of necessary computer equipment or software; telephone or postal charges, or batteries for radio receivers.

		Amount	Amount
Student and related sources?	113.	[____]	[____]
Other user sources? [please specify]	114.	[____]	[____]

Other Funding:

		Amount	Amount
Other funding? [Please specify]	115.	[____]	[____]

PART 3 :
FIVE ASIAN CASE STUDIES

UNESCO
Project Report

INSAT for EDUCATION PROJECT of the CENTRAL INSTITUTE OF EDUCATIONAL TECHNOLOGY, INDIA.

A Case Study Taken Under the UNESCO
Project on the Study of Asian Institutions
Making Large-Scale Use of Communications
Technologies for Educational Purposes.

Jagdish Singh
May, 1988

Central Institute of Educational Technology
National Council of Educational Research & Training
Sri Aurobindo Marg, New Delhi – 110016
India

A. THE CONTEXT

1. National Profile

1.1 Geography

After having remained under British rule for more than 200 years, India regained independence in 1947. It became a republic in 1950 with the adoption of a constitution of its own committed to equality, social jůstice, democracy and socialism through planned development. The country is a federal polity with 25 states and nine union territories.

India occupies a strategic position in Asia, looking across the seas to Arabia and Africa on the west, and to Burma, Malaysia and Indonesia on the east. It shares its political borders with Pakistan on the west and Bangladesh and Burma on the east. The northern boundary adjoins countries such as China, Nepal and Bhutan. The vast Himalayan ranges in the north, north west and north east have kept it apart from the rest of Asia.

India lies to the north of the equator between 8° 4' and 37° 6' north latitude and 68° 7' and 97° 25' east longitude. It measures 3,214 km from north to south and 2,933 km from east to west with the total land area of about 3,287,263 sq.km and a coastline of 7,516 km.

All the major landforms, hills, mountains, plateaus and plains are well represented in India. This, together with a moderate tropical climate and abundant sunshine, accounts for its rich agricultural diversity.

1.2 Population and Demographic Trends

India is the largest democracy in the world, and the most populated country next to China. According to the 1981 census, its population is 685.2 million, and the country is in a state of demographic transition which indicates a passage from high mortality and high fertility rates to low mortality and low fertility rates. The population growth rate during 1971 – 81 averages at around 2.48%. At this rate, India's population would be more than one billion by the turn of the century.

India accounts for nearly 2.4% of the total world area but it contains about 15% of the world population. In other words, every seventh person in the world is an Indian. The average density of population is 216 per sq.km.

1.3 Literacy

According to the 1981 census, the percentage of literacy is 36.17. There is, however, great disparity in male and female literacy rates. There are 201 males for every 100 literate females in 1981.

One of the paradoxes in the Indian literacy situation is that while the percentage of literacy has been increasing every decade (29.45 in 1971 to 36.17 in 1981) the total number of illiterates has also been increasing due to higher increase in the rate of growth of population as the following figures show:-

	LITERATES	ILLITERATES
1971	156,440,275	372,145,203
1981	237,991,932	419,933,693

1.4 Religions and Languages

India is a multi-religion and multi-lingual country. The major religious communities are Hindus, Muslim, Christians, Sikhs, Buddhists, Jains and Parsis; the Hindus account for more than 82% of the total population.

There are 15 officially recognised languages with as many as 1,652 mother tongues as listed in the census. Of these, at least 33 are spoken by people numbering over 100 thousand. The states have been carved mostly on a language basis.

India never had a common language which was intelligible to the masses everywhere in India. After independence, the constitution has recognised Hindi in Devanagri script as the official language of the Union, and the regional languages as the official languages of the states concerned. Numerically, Hindi is spoken by the largest proportion of the population (40%) and is the official language of six states.

1.5 Communications Infrastructure

India has an impressive infrastructure of communications in the form of print and broadcast media.

The Indian print medium dates back to more than one hundred and fifty years. There are as many as 36 centenarians. At the end of 1984, the total number of newspapers and periodicals was 21,784 published in 92 languages and a few foreign languages.

India has four news agencies and a Press Information Bureau for faster news flow, and three Press Councils to safeguard the freedom of the press, maintain and improve the standard of newspapers and news agencies.

Radio broadcasting in India started in 1927 with two privately owned transmitters. The government took them over in 1930 to establish the India Broadcasting Service, and is government controlled since then. The name was changed to All India Radio (AIR) in 1936 and since 1957 it is known as 'Akashvani'.

Akashvani has 98 stations having 142 MW transmitters, 40 SW transmitters and 4 VHF (FM) transmitters. With this, 95% of the population and 86% of the area of the country is covered. The target is to make radio broadcast accessible to 99% of its populace in the coming five years.

As many as 44 stations regularly produce programmes for the schools and another 30 stations relay these programmes to reach students and teachers in remote areas. There are programmes for the primary and the secondary school children and the teachers. Some stations broadcast programmes in support of correspondence courses offered by the Boards of School Examinations and Universities.

Television was introduced for the first time in the country in 1959 as an instrument of social and economic development on a pilot project basis with the establishment of a centre at Delhi. It was first an integral part of Akashvani, but later became a distinct entity and came to be known as Doordarshan. Over the years, it has expanded its reach and area of activities in the spheres of education, information and entertainment. It has a network of more than 225 high power (HPTs) and low power transmitters (LPTs). However, only a limited number of centres are production centres.

The television transmission facilities made available by the country's own satellite viz Indian National Satellite (INSAT) has been made use of by Doordarshan for direct telecast of the programmes and for the national networking of the terrestrial transmitters through the use of a microwave system.

72% of the population is covered by television transmission, but actual acess to television is severely constrained by the limited number of TV sets. There are around 10 million TV sets in the country many of which are concentrated in metropolitan, urban and semi-urban areas. The government is planning to launch an expanded programme of community TV.

1.6 Economic Features

India is predominantly an agricultural country; 75% of its population lives in more than 500 thousand villages.

India's agricultural growth from the days of the begging bowl to the days of philanthropy has been phenomenal. The Green Revolution of 1967 – 68 and 1983 – 84 brought about by spread of scientific methods of cultivation has helped her not only brave the recurrent ravages of drought and flood but also offer food aid to the less fortunate masses in Asia and Africa. The success in White Revolution has also been encouraging.

However, the success in agriculture has not been uniform all over the country. A major weakness of the Indian agriculture is that nearly 2/3rd of the cultivated area is still dependent on rains. This together with small and fragmented holdings stand as great stumbling blocks towards alleviation of poverty in the country. According to an estimate about 37% of the people live below the poverty line. A large number of children have to work to augment family income rather than go to school.

The country had been doing well on the industrial scene also, with an average annual growth rate of over eight per cent for the last three years. India has opted for a mixed economy. There is also emphasis on encouragement of small scale and cottage industries for greater employment generation and equal distribution of wealth.

The country is poised for a great leap forward in the 21st century on economic and educational fronts with greater emphasis on science and technology and space programmes.

2. Educational Profile

2.1 Introduction

The importance of education as the most effective instrument for national development has been well recognised by the country from the very beginning of its independence in 1947.

It is further recognised that elementary education spanning the first eight years of schooling (up to the age of 14 years) is the most crucial stage of education. It is at this stage that the basic skills of reading, writing and arithmetic are acquired, values internalized and environmental consciousness sharpened. Investment in elementary education yields the highest rate of return, and has a significant impact on productivity and development of the nation.

The Directive Principles contained in Article 45 of the Constitution of India enjoin that the 'State shall endeavour to provide, within a period of ten years from the commencement of this Constitution, for free and compulsory education for all children until they complete the age of fourteen years'.

Several commissions and committees have reviewed the problems of education in the country from time to time. The Education Commission (1964 – 66) had examined all levels and aspects of education in depth and formulated comprehensive recommendations for reconstruction of the educational system. Based on the recommendations of the Education Commission, a resolution on National Policy on Education was formally issued by the Government of India in 1968. The resolution pointed out that radical reconstruction of education involved a transformation of the educational system to relate it more closely to the life of the people, a continuous effort to expand educational opportunity, a sustained and intensive effort to raise the quality of education at all stages, an emphasis on the development of science and technology and the cultivation of moral and social values.

Since the adoption of the 1968 resolution, a great deal of advancement has been made in the field of education. A notable development has been the acceptance of a common structure of education throughout the country and introduction of 10+2+3 pattern of education by most states and union territories (UTs).

Although the Indian education scene has been characterised by massive quantitative expansion at all levels and by efforts directed to qualitative improvement, the general formulations incorporated in 1968 policy were not, however, accompanied by the required financial and organisational support and viable strategy. Problems of access, quality and utilization still remained to be overcome and it was recognised that neither normal linear expansion nor the existing pace and nature of improvement could meet the needs of the situation. This made it imperative to evolve a new design for education and new policy directions in the context of the contemporary realities and future concerns. Based on a nation-wide debate on different aspects of reconstruction of the educational system in the country, a new National Policy on Education (NPE) was adopted by the Government of India in May, 1986.

The new policy envisages a national system of education which implies that up to a given level, all students, irrespective of caste, creed, location or sex, have access to education of a comparable quality. It also envisages a common educational structure, a national curricular framework, equal opportunity to all not only in success, but also in the conditions for success, and minimum levels of learning for each stage of education. The policy assigns an important role to educational technology, particularly mass media, for educating, hitherto unreached, children, for qualitative improvement of school education and for training of teachers.

2.2 Organization and Structure of the Educational System

For administrative purposes, the country is divided into states and union territories (UTs). It being a federal polity, the primary responsibility of school education rests with the states/UTs. However, through an amendment in the Constitution in 1976, education was made a concurrent subject, thus investing the Parliament of India with the authority to legislate on education. Nevertheless, every state/UT has the freedom to determine its own educational structure particularly at the school stage. Such an arrangement has resulted in some variations over the states. However, there is almost complete uniformity in the pattern of school education within a particular state or union territory.

Variation exists in the educational structure in respect of the first ten years of schooling. The primary stage consists of first five years of schooling (class I – V) in some states, and four years of schooling (classes I – IV) in others. The upper primary stage (middle level) consists of three years of schooling after the primary stage. The upper primary stage may be an independent unit or combined with primary or secondary section or both. The primary and upper primary stage together constitute the elementary stage. The elementary stage has classes I – VII or I – VIII depending upon the pattern followed in a state/UT. The NPE, 1986 has recommended 5+3 pattern of elementary education to be adopted all over the country. This will be followed by two years of secondary education, and another two years of higher/senior secondary stage of school education.

The State/UT Government have their own machinery for administration of school education. Apart from the government, local self government bodies and private organisations also manage school education.

Though education through formal schooling has dominated the educational scene, efforts were also made to spread education through non-formal means. Non-formal education focusses on children in the age-group 9–14 years who can either not join regular schooling or drop out prematurely. It was during the sixth five year plan (1980–85) that relatively more emphasis was laid on non formal education centres. The educationally backward states were particularly involved in this programme.

At the Central level, the Department of Education in the Ministry of Human Resource Development is responsible for all matters connected with education, including overall planning of programmes and providing guidance for their implementation. The Department provides guidance to states/UTs in the formulation and implementation of educational plans and programmes, besides being directly responsible for implementation of the programmes sponsored by it. It is also responsible for co-ordination of activities in the field of school education and for monitoring the progress of education all over the country. The Department has a special responsibility in the field of school education with respect to UTs.

In order to assist and advise the Government in the formulation and implementation of policies and programmes in the field of education, particularly school education, the Union Government have set up a number of specialised institutions and organisations at the national level. The National Council of Educational Research and Training (NCERT) is one such prominent institution. The Council also conducts research, develops curriculum and instructional materials, arranges training in the field of school education including teacher education. It maintains a close liasion with the states/UTs through its network of offices of Field Advisers and four Regional Colleges of Education.

2.3 Expansion in Educational Facilities

Education is the second highest sector of budgeted expenditure in the country after Defence. A little more than 3% of the Gross National Production (GNP) of the country is spent on education.

The country has made considerable progress in terms of increase of all types of institutions, volumes of enrolment and the sophistication and diversification of educational programmes.

During the last three and a half decades the number of primary and upper primary schools has increased from 240,000 to 650,000–more than a two and a half fold increase. Most children now have access to a primary school within one kilometer of their homes.

The number of middle schools has increased from 13.4 thousand in 1950–51 to 123.3 thousand in 1982–83, thus registering an annual increase of 7.2%. Whereas in 1950–51, there was one middle school for every fifteen primary schools, this ratio has improved to 1:4 in 1982–83.

Thus, during 1950–83, the number of institutes dealing with elementary education increased at an annual growth rate of 3.3%. During the same period, the number of primary school teachers increased at the rate of 3% per annum and 7.5% in case of middle schools.

There has been also an all round increase in the enrolment of children in the schools. Appromimately, 95% children in 6–11 age group and 50% children in 11–14 age group are enrolled in the schools.

The achievements are impressive. However, the quality of the system has not improved substantially to retain children for long. Nearly, 60% children drop out between classes I – V and as much as 77% between classes I – VIII. In other words of 100 enrolled in class I, only 23 children reach class VIII, resulting in tremendous wastage. Low retention and high drop out rates continue to swell the ranks of children who are out of school.

Also, there are disparities in access to education between states, localities, sections and sexes. There are quite a few states, where both enrolment and retention rates are particularly low. Nine states have been categorised as educationally backward.

Even though 75% of the population lives in the rural areas, the latter get less by way of resources for education than the urban areas. In 1970 – 71 the rural urban ratio of expenditure was 0.79. Comparatively poor teaching facilities and resources partly account for higher drop out rates in rural areas. In terms of access to educational institutes also, urban areas are at an advantage. Small settlements in remote areas remain unserved by primary schools.

The magnitude of enrolment ratio and retention rate in respect of children of scheduled castes and tribals is low compared to general population. Also, the enrolment of girls has lagged behind compared to those of boys. In 1982 – 83 for each boy, 0.63 girls have been enrolled at the primary level, the same figure is 0.51 at the middle level.

All these facts have severe implications for the universalization of elementary education. The achievement of the target has been eluding the country and the target itself has become more difficult to achieve.

2.4 Unmet Demands

The country is faced simultaneously with the challange to fulfill two formidable tasks-one of providing quality education, at least up to elementary stage, to every one to develop one's fullest potential and the other of simultaneously transforming the content and process of education to meet the emerging needs of tomorrow.

2.4.1 Unreached Children

It is true that there has been all round increase in the enrolment of children at all levels of education. However, the rate of growth of primary enrolment for 1971 – 81 was below the age specific population growth. Because of explosion in numbers, less than fuller enrolment, disparities between states, sections and sexes in enrolment ratios, and high drop out rates, the out-of-school children far out number the children in the schools.

2.4.2 In-service Training of Teachers

There are thousands of primary school teachers who need to be constantly trained and oriented in the fast changing content and pedagogy of teaching-learning process. The teachers, by and large, find themselves out of touch with the changing frontiers of knowledge. They also have no means of keeping themselves abreast with technical aids for more effective teaching. Those working in a remote school are mostly cut off from all meaningful debate with their peers. Many teachers never get an opportunity to go to a summer course or orientation programme. The institutional facilities available in the country are not adequate to cope with the in service requirements of a large number of teachers.

2.4.3 Quality of Education

There is a wide spread concern that quality of education imparted to the children is rather poor because of emphasis by the teachers on rote learning, repetitive exercises and memorising on the part of the children. The children don't acquire basic skills to a satisfactory level in 3 Rs. even after spending quite a few years in the school. Also, very little is done to build capacity among the children for selfstudy, curiosity, inquisitiveness, scientific temper and communication skills. In the world of tomorrow developing the capacity to learn would be more important than what is learnt. There is a feeling that measures must be taken to supplement the present education by instilling these capabilities among the children.

2.4.4 Value Education

The people are also concerned about progressive erosion of values. There is a need to create among children a sense of self confidence and pride as a nation, imbibe a feeling of national integration, concept of dignity of labour and small family norm. In the present world, communication has abolished distance and to some extent national boundaries. It is also a world threatened with environmental and nuclear catastrophies. Education for values has acquired a new dimension and a new urgency in this context.

2.5 Options for Meeting the Demand

The challanges in education before the country are formidable. No amount of linear expansion of the schooling facilities will suffice to impart elementary education to all children of the specific age group. Firstly, the country may not find huge resources to do that. Secondly, there are a number of compelling socio-economic reasons to keep a number of children out of school. Most primary schools, particularly in the rural schools, don't have enough resources and facilities to meet the educational needs of the children. Quite a few primary school have a single teacher to teach 3 – 4 different classes. A number of schools don't have even the inexpensive teaching aids. By and large, the methods of teaching are outmoded. The existing pace and nature of improvement in schools may not be commensurate to meet the needs of the situation.

In a country the size of India, the advantages of a satellite for programme distribution are abvious. It is in this context that INSAT for Education Project as a viable alternative system has been introduced through the Central Institute of Educational Technology.

3. Central Institute of Educational Technology

3.1 General Mission

The Central Institute of Educational Technology (CIET) has been set up in the National Council of Educational Research and Training (NCERT) with the broad objective of promoting the use of educational technology, particularly mass media, for the spread and improvement of the quality of school education in the country by generating appropriate software for children and teachers, training manpower in educational media and technology, and offering consultancy and extension programmes. The CIET is called upon also to assist and advise the Ministry of Human Resource Development in planning and implementation of its policies in educational technology.

3.2 Specific objectives

- To promote an understanding and appreciation, particularly among the key-level personnel, about the role of educational technology in solving country's problems in education through orientation programmes.
- To design alternative learning systems for maximizing educational gains, reducing costs and wastage in education.

- *To promote development and utilization of various media through low and high cost technology for increasing efficiency* of educational communication.
- To develop educationally relevant software.
- To create competencies within the country in various aspects of educational technology through training, consultancy and extension programmes.
- To conduct research and evaluation of improved systems, methods and materials in educational technology.
- To document and disseminate information about hardware and software in the area of educational media and technology.

3.3 Essential Policy Guidelines.

It is envisaged that CIET would work for designing alternative learning systems using mass-media particularly television and radio for extending the reach of quality education to the children and teachers in remote areas and to disadvantaged sections of the society. The broadcast media, with their inherent advantages of greater reach and cost effectiveness, could be used effectively to achieve the ends of equity, social justice and universalization of elementary education.

The country has already acquired its own satellite having capabilities of TV and radio transmission. There are plans to expand the transmission network, provide a dedicated educational TV channel by 1991 – 92, and in the long term to create a dedicated satellite system for meeting educational needs.

Experience all over the world has, however, shown that school broadcasts sooner or later come to a dead end since it is not feasible to relay programmes for every class and standard through radio and TV closely synchronised and co-ordinated with the teaching schedule in the class room. It works much better if media are used for enrichment of the learning process, creation of inquisitiveness and the ability to learn and derive joy in learning. The media have also the potential of training and retraining a large number of teachers, and improving their competency in content and pedagogy of teaching.

It is further recognised that for better acceptance and effective utilization, the programme production should be decentralised. This is important if the idea is to produce programmes which are based on local language, environment and idiom, and are appropriate, relevant and meaningful for the target audience.

Meeting the demand for qualified manpower to work in various educational media centres in the country calls for sustained effort in organising traninig programmes for creating a pool of trained manpower for software production, technical operations, maintenance of the hardware and management of the media systems. It also calls for availability of consultancy and help in setting up production centres, selection and installation of hardware.

The CIET has been guided by the above mentioned philosophy and requirements for reaching rural teachers and in-school and out-of-school children at the elementary level and promoting the use of satellite technology in the country.

Quality education requires effective use of various support materials related to the curriculum in an integrated fashion. The CIET is, therefore, equally concerned with the development of low-cost and no-cost teaching aids made from materials available in the environment. It is also engaged in the production of charts, slides, audio tapes etc. at the school level to enhance communicability with the children.

3.4 Relationship with Governments and other Agencies

The CIET is a constitutent unit of the NCERT which is an autonomous body set up in 1962 by an act of Parliament to work for upgrading the quality of school education in the country, and also to assist and advise the Ministry of Human Resource Development in the implementation of its policies and major programmes in the field of education, particularly school education.

The CIET was set up in 1984 by the merger of two erstwhile departments namely Centre for Educational Technology and Department of Teaching Aids of the NCERT in a scheme of things to boost the promotion of educational technology, mass media in particular, in the country.

In the field of educational television, CIET continues to discharge a co-ordinating role as well as providing the necessary leadership and guidance to the State Institutes of Educational Technology (SIETs) in setting up and managing production facilities, training of academic and technical staff and resource persons for orientation of user teachers, design of ETV curriculum and support materials, tools for evaluation and programme research and for monitoring the utilization of ETV programmes.

The State governments and their agencies are responsible for the recruitment of the production staff, production of the locally relevant programmes, supply and maintenance of receiving sets, production and distribution of support material, audience research and evaluation studies, training of user teachers and custodians. Voluntary agencies and individual producers will also be involved in production activities to the extent possible.

The Ministry of Human Resource Development is funding the setting up of production facilities at the Centre and in the states. Additional assistance to this has come from UNDP/UNESCO in the form of equipment, consultancy and fellowships. Taking advantage of this assistance, the CIET has been able to organise a number of training courses within the country with the help and collaboration of various international organisations of repute for the benefit of the staff of the CIET, SIETs and other institutions concerned with ETV productions.

The CIET also draws upon the expertise of various national institutes concerned with media, performing arts, drama, films, photography and other fields related to ETV production for enriching the experience and quality of its staff and also production of software.

In short, the CIET is not merely a production centre but also a training, consultancy and extension institution. It also advises and assists the Ministry in planning, implementing and co-ordinating effort in educational technology.

B. INPUT : SYSTEM DESIGN

1. Planning and Establishment

1.1 Background Information

Television was introduced for the first time in the country in 1959 as an instrument of social and economic development on a pilot project basis with the establishment of a centre at Delhi. Soon after, the school television service was initiated in 1961. Syllabus-based programmes in various subjects were telecast at the middle and secondary level. An effort was also made to synchronise the TV lessons with class room teaching as much as possible. Out of about 850 middle and secondary schools of Delhi, more than 600 were provided with TV sets.

However, India's first attempt to use television for developmental communication and primary education on a mass scale came with the availability of the American satellite, ATS–6, during the Satellite Instructional Television Experiment (SITE) in 1975–76. The experiment was conducted in 2,330 villages provided with a community receiving set each scattered in 20 districts spread over six states of the country covering four regional languages.

SITE was essentially an exercise to gain experience in the development, management and testing of a satellite-based instructional television system, particularly in the remote and backward rural areas, and to determine suitable system parameters.

As for the educational programming, SITE was a big departure from school television. The emphasis was on enrichment programmes to broaden the horizon of the children in place of the syllabus-based supplementary programmes.

SITE demonstrated the beneficial effects of television on learning on part of the primary school children, particularly in language development and general understanding and information seeking behaviour of the children. A multi-media package using television as one of the components was also successfully used to train more than 40,000 in-service primary school teachers in the pedagogy and content of science during the autumn and summer vacations of the year.

After the success of SITE, the Government of India decided in 1977 to have its own satellite for instructional and other purposes. The first generation Indian National Satellite (INSAT–1) * represents India's efforts towards this direction. The first INSAT–1 spacecraft (INSAT–1A) was launched on 10th April, 1982. It, however, had to be deactivated on 6th September, 1982 due to some technical fault. With the operationalization of the second INSAT–I spacecraft (INSAT–1B) in mid October, 1983 the satellite technology was once again put into service of education of the general masses as well as to improve the quality of formal and non-formal education of young children, and enhance the competency of the primary school teachers. **

The main objective of the TV service for education through INSAT–1B is to bring about socio-economic development in the country, with particular reference to backward and remote rural areas.

The TV signals from the satellite are available all over the country. However, the initial scheme of providing community receiving sets was limited during the Sixth Plan period i.e. by the end of 1984–85 to a few clusters, one each in six states namely, Andhra Pradesh, Bihar, Gujarat, Orissa, Maharashtra and Uttar Pradesh covering five regional languages. Each cluster comprises of 3–5 selected contiguous districts.

The reception of the programmes through the satellite is both by Direct Reception System (DRS) and Re-broadcast System (RBS).

Under the DRS, TV Programmes are directly received from the satellite with the help of an especially designed TV set augmented by a 12–feet diameter parabolic chicken-mesh antenna. DR sets have been installed in remote areas with thin density of population particularly those with mountaneous terrain, where installation of a terrestrial transmitter is not cost-effective.

Under the RBS, terrestrial transmitters first receive the programmes from the satellite and then re-broadcast them. The reception through ordinary VHF sets is limited to the coverage area of a transmitter. ***

TV signals are sent to the satellite through the earth uplinking station at New Delhi. ****

In addition to about 650 VHF sets continuing since SITE in 1975–76, another about 4,000 community receiving sets were installed in the selected clusters in the six states during the Sixth Five Year Plan period, and early Seventh Plan period. Out of these, about 1,800 villages receive TV programmes directly from the satellite using the special Direct Reception sets, and the remaining villages through the ordinary VHF sets.

Most of the community receiving sets have been installed in the schools for the benefit of the children. At some places, sets have been placed at the office of the village Council (Gram Panchayat).

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* INSAT–1 is a multi-purpose satellite. In addition to other capabilities, it provides for two nation-wide television broadcast channels.

** Satellite technology was later put to use for education at college level also under a separate 'country-wide class room' Project.

*** Under the TV expansion plan, there are now more than 225 high power (HPT) and low power (LPT) terrestrial transmitters in the country. With increasing number of LPTs and HPTs, the relevance of DRS is diminishing.

**** Uplinking facilities have since been set up at Bombay and Hyderabad also.

Each day, there are two TV transmissions via INSAT-1 for each cluster specifically, one in the morning and another one in the evening. The morning transmission of 45 minutes in each of five regional languages is devoted to improvement in the quality and spread of primary education. To this end, programmes for children, both school going as well as out-of-school children, and teachers are telecast. As for the children, there are two chunks of 20 minutes duration, one for the children of 5-8 years and the other for the children of 9-11 years, with an interlude of five minutes between the two programmes for change over. These are telecast five days a week, Monday through Friday, during school days. The programmes for the teachers appear once a week on every Saturday.

The evening transmission service of 40 minutes for each cluster is mainly devoted to adult education on subjects like agriculture, animal husbandry, health, hygiene, family welfare, social education, and rural development. For this purpose, area specific programmes are planned and produced by the respective local television centres, with the co-operation and consultation of the concerned user departments and ministries. In addition, there is a common national programme for about one and a half hours for all the clusters. The same TV sets as used in the morning are utilised by the community for viewing the evening programmes also.

1.2 Planning Exercise

In July, 1979 the Ministry of Human Resource Development (then the Ministry of Education) took steps to develop a plan of action for the utilization of television and other capabilities that would become available with the launching of INSAT-1A in 1982 for education of the young children. In order that educational television should become relevant to the needs of the educational situation, it was decided that production of the ETV programmes would be the direct responsibility of the educational authorities. (earlier, during SITE, most of the ETV programmes were produced by the television centres of the Ministry of Information and Broadcasting, and some by the Indian Space Research Organisation).

A Study Group was set up on INSAT TV Utilization in May, 1980 to prepare a plan of action in the context of the above mentioned decision. Briefly, the Study Group in its report submitted in 1981 developed a policy for the use of television, identified approaches, priorities, target audiences and themes for programmes, suggested an infrastructure and manpower requirements for programme production capabilities, identified key areas for training, developed training courses, and suggested lines for further action.

1.3 Establishment

In keeping with the recommendations of the Study Group, steps were taken in 1982-83 to set up television production centres and other production facilities at the national level in the CIET, and in each of the six INSAT states in the State Institutes of Educational Technology (SIETs). The CIET undertook the responsibility of co-ordinating the effort for installation of equipment, setting up of studios and training for manpower in the states.

1.4 External Support System

The Government of India in the Ministry of Human Resource Development has the overall responsibility of funding and promoting the use of satellite technology for education.

Assistance to the tune of US $ 2.3 million from UNESCO/UNDP and from UNICEF is also available to the Government of India under the INSAT for Education Project in the form of consultants, fellowships, training programmes and equipment for the growth of educational television in the CIET and the SIETs.

Since in the beginning production facilities were not readily available in the SIETs and the CIET also did not have full complement of the production facilities, the production work was shared between the CIET and the local Doordarshan Kenras (television Centres) of the Ministry of Information and Broadcasting on 50:50 basis. The CIET produced programmes for the children for two days a week and for the primary school teachers. All these programmes were first produced in Hindi, and later dubbed in the other regional languages. The local Doordarshan Kendras supplemented the effort by producing programmes for the children for the remaining three days till 1984 when the entire production work was taken over by the CIET. However, some SIETs had already started preparing regional languages versions of the programmes produced by the CIET. Soon, the SIETs in Maharashtra and Gujarat assumed the responsibility of feeding children's programme all five days in a week. Other SIETs will shortly follow suit in keeping with the policy to produce local language and environment based programmes. The state Governments have taken steps to recruit and position the requisite staff in the SIETs.

The SIETs also undertook training of the teachers to function as TV users and TV custodians. The resource persons from the states were earlier trained in this respect by the CIET. The CIET had also prepared a training manual for the purpose.

The transmission of the programmes through the terrestrial transmitters via the satellite is the sole responsibility of the Ministry of Information and Broadcasting. The Ministry was also instrumental in selecting the potential TV villages with the help of the local Doordarshan Kendras and the District Education authorities, and the supply and the installation of the community receiving sets in the selected clusters. The suppliers of the receiving sets provided free-of-cost repair and maintenance of the sets during the one-year guarantee period.

The responsibility for the maintenance of the sets was subsequently taken over by the respective State Governments. The states are also responsible for payment of honorarium to the TV custodian, who is generally a teacher of the TV school, for safe custody and operation of the television receiving set during the morning as well as evening transmission. The cost towards consumption of electricity, postage for sending feed back and fault reports is also borne by the state governments.

1.5 Initial Intakes

To start with, the TV service was taken-up in the selected clusters in Andhra Pradesh and Orissa in August, 1982 with the availability of INSAT - 1A. It was added on to Maharashtra with the operationalization of INSAT - 1B in October, 1983. The service was extended to the remaining states namely Bihar, Gujarat and Uttar Pradesh from October, 1984. Each cluster comprises of 3-5 contiguous districts. The criteria for selection of the areas were, among others, remoteness, lack of communication facilities and concentration of backward segments of the population, some infrastructure already available for TV programme production and transmission etc.

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The selected clusters for deployment of community receiving sets in each state are as under:–

Andhra Pradesh	Kurnool, Rangareddy, Hyderabad, Mehboobnagar
Bihar	Ranchi, Palamu, Singhbhum, Gumala, Lohardagga.
Gujarat	Rajkot, Jamnagar, Junagarh
Maharashtra	Nagpur, Bhandara, Chandarpur and Chandchiroli
Orissa	Bolangir, Sambalpur and Dhenkanal
Uttar Pradesh	Gorakhpur, Azamgarh and Basti.

As mentioned earlier, in addition to about 650 VHF television sets continuing since 1975–76, another about 4,000 sets were installed in a phased manner in the selected clusters, mostly in the village schools. The position with regard to the installation of the TV sets in the selected cluster is given in the table given below.

TABLE:–Distribution of community receiving sets in the selected clusters

State	Location of terrestrial transmitter	Number of Community TV sets			
		VHF	DRS		
			Electrical	Solar	Total
Andhra Pradesh	Hyderabad	620	200	–	820
Bihar	Ranchi	400	200	100	700
Gujarat	Rajkot	400	300	–	700
Maharashtra	Nagpur	600	280	–	880
Orissa	Sambalpur	260	400	–	660
Uttar Pradesh	Gorakhpur	600	200	100	900
	Total	2,880	1,580	200	4,660

According to the data gathered from the field, the total number of children of class I – V (5–11 years old) and other children who watch ETV programmes on the community receivers during the morning transmission varies from school to school. On an average, it ranges from 50–200 with an average of about 110 children per TV set. Each TV school has, on an average, 3–4 primary teachers who also benefit from the programmes.

2. Organisational Structure

As mentioned earlier, the CIET is responsible for co-ordinating the effort at the centre and of the states for successful implementation of the scheme of using satellite technology for education.

As the premier educational technology institute in the country, the CIET is concerned with the promotion and development of the total gamut of educational technology including small format technology. Educational television, however, forms a major part its activities. The Institute functions through the following eight Divisions:–

i. Educational Television Script, Training and SIET Co-ordination.
ii. TV Production and Films
iii. Distance Education, Planning, Co-ordination, Research and Evaluation.
iv. Graphics, Exhibition and Printing.
v. Education Radio
vi. Information, Documentation and Central Film Library.
vii. Technical Planning, Operations and Maintenance
viii. Administration and Accounts

The Script and Training Division is directly concerned with scripting for ETV Production in the CIET, training of personnel of the CIET, SIETs and of other institutes in the country concerned with ETV production in various aspects of ETV production, and co-ordination with the SIETs for setting up production facilities and utilization of the ETV service.

The major activity of the Division of TV Production and Films is about planning of ETV curriculum, production of ETV programmes for the target audiences, preparation of regional language versions of the programmes, preparation of programme capsules for feeding the satellite, preparation of consolidated programme schedule and publicity of the programme schedule.

The Technical Planning, Operations and Maintenance Division is mainly concerned with providing engineering support for ETV production, setting up of facilities and technical areas in the CIET and SIETs, training of technical staff, providing consultancy and extension services in selection of appropriate hardware and training of technical personnel.

In addition, services of other Divisions and Units of the CIET are also drawn upon as an when required to help ETV production. This particularly involves Research and Evaluation Unit and Graphics Unit.

The Institute is headed by a Joint Director. The Director NCERT is also the Director of the CIET.

The staff in the CIET is on full time basis. However, some members of the staff are on ad hoc basis, and occasionally contract staff are brought in.

The position of staff in the various Divisions concerned with ETV production, training, co-ordination, research etc. in given in Appendix I. This also indicates the proportion of time devoted by each for ETV work.

3. Growth and Development

3.1 Courses and Programmes

The broad objective of the scheme is to improve the quality and spread of elementary education by enriching the experience of the rural child and making learning more joyful for him. The programmes are of enrichment type and not strictly based on syllabus though some areas included in the syllabus do find expression in the programmes. The goals of the ETV service have evolved themselves out of the past and the present experience of using the medium for education, understanding of the child and national aspirations. The process is still continuing.

It is also desgined to improve the motivation and competency of the primary school teachers. Here too, the emphasis is to increasingly become a facilitator rather than imposer for learning on the part of children.

Accordingly, the CREDO of the ETV programmes has been to

- lead children to explore, to do, to experiment and to discover
- contribute to the development of their skills
- create awareness of their environment
- develop desirable attitudes, habits and self-reliance.

All in an interesting and entertaining manner to create joy for learning.

The child is thus the focus of attention – the child at the young age of 5–11 years. And the education is through the child-centered approach rather than the conventional teacher-centered methods and techniques.

3.2 Student Profile

Though intended for the rural child of 5–8 and 9–11 year age group of only a few selected clusters of the six INSAT states, these programmes are now being relayed since October, 1984 by all HPTs and LPTs in these states. In addition, the Hindi version of the ETV programmes are being relayed by the transmitters in four more Hindi speaking states and one Union Territory. The selected ETV programmes are also regularly telecast by the Delhi Doordarshan Kendra in its general programme for the children telecast in the evening.

To overcome the constraint of the availability of receiving facilities, some state governments have introduced a scheme of subsidizing the purchase of receiving sets on the part of the schools and other rural institutions. There is also evidence to show that quite a few schools and other institutions have acquired receiving sets of their own.

The available evidence shows that in the expanded scheme of telecast of the ETV programmes, a large amount of viewing also takes place on the privately owned receiving sets in the homes particularly in the semi-urban and urban areas.

This had gone a long way in extending the benefits of the ETV telecasts to a much larger number of children and teachers in a much wider geographical area than envisaged in the beginning. In addition to young children, youths and adults also watch these programmes. It is felt that the number of unintended audiences is increasing as more and more persons are becoming aware of the existence of the ETV service. Progressive increase in the number of receiving sets, particularly the private sets, is favourably influencing the size of the viewers.

3.3 Physical Infrastructure

Pending the availability of a permanent site for TV studio and other technical facilities, the CIET started with production work in 1982 in a small TV studio supported by an OB Van equipped with black and white equipment.

In early 1984, an old library building of the NCERT was converted into a continuity TV studio. The colour ENG equipment was shortly added on to the facilities.

A new building especially designed for the CIET is coming up in the campus of the NCERT which is likely to be completed by the beginning of 1989. With this, all Divisions of the CIET, including the TV technical areas, would be housed under one roof, instead of at three different places at present. There would be two TV studios, supported by editing, mixing and telecine facilities, and a set of ENG Cameras and OB Van * and two audio studios.

Similarly, new buildings housing the audio and video studios have been constructed in the six states, and equipped with all necessary equipments for taking up independent production of ETV programmes in the SIETs.

3.4 Qualitative Development

Over the years, there has been marked improvement in the quality of the educational television programmes produced by the CIET as evidenced by testing of the programmes with the children, feedback reports from the teachers on reaction of the children to the programmes, and viewers' mail.

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* OB van at present only has the black and white facility. It is no longer used on location.

Recently, an educational television programme produced by the CIET entitled "Air Around Us" for 9–11 year age group won Special Prize in the International Educational Programme competition held by NHK, Japan in 1988.

During these years there has been considerable stress by the CIET on staff development programmes. Taking advantage of assistance provided by the UNESCO/UNDP, the CIET has adopted an innovative practice of organising various in-country training courses with collaboration of international agencies of repute. In all, 30 in-country international training courses have been organised. This has proved to be helpful in imparting quality training to a much larger staff than would have been possible by deputing trainees abroad. In the various training courses, more than 600 members of the staff of the CIET, SIETs and those of other institutes in the country having TV production capabilities have been imparted training.

The training courses have covered such aspects as ETV production, technical operations, camera work, editing, management of the production system, graphics, animation etc.

In addition to the training imparted in the in-country training courses, quite a few members of the staff of the CIET and the SIETs have been deputed abroad on study tours to acquaint themselves with the advanced techniques of ETV production, and management of media-based distance education systems.

Emphasis on staff development programmes, formative evaluation of the ETV programmes and monitoring the utilization ETV programmes have significantly contributed towards bringing about qualitative improvement of the software and management of the system.

C. EDUCATIONAL PROCESS

1. Course Development

1.1 Philosophy

As already mentioned, the broad objective of the ETV service is to improve the quality and spread of elementary education by enriching the experience of the rural child who is isolated and backward, and whose exposure to the outside world is limited. The ultimate aim is to evolve television as an alternative medium of elementary education of both formal and non-formal nature for in-school as well as out-of-school rural child. Hence the television programmes are not strictly oriented to class room curriculum but instead based on learning from environment. More specifically, the programmes for the children are of enrichment type designed to widen their horizon, inculcate inquisitiveness, scientific temper and joy for learning, foster national consciousness and other abiding values.

Another objective of the ETV service is to build the motivation and competency of the rural primary school teacher who is less qualified and less trained, and has comparatively fewer supportive facilities in the teaching-learning process. The teachers' programmes are developed to enrich their knowledge of the content they are supposed to transact to the children, pedagogy of teaching, appropriate use of television and development and use of low-cost/zero-cost teaching aids made from materials available in the environment to improve the teaching-learning process.

1.2 Curriculum Development

Keeping in view the above mentioned broad objectives of the TV programmes as recommended by the Study Group and requirements of the contemporary nature, the CIET took up the work of framing the curriculum of the ETV programmes. For this, national workshops were convened, first in 1983 and followed by that in 1984 and 1985 to determine specific themes and series, and topics in each series appropriate for ETV programmes.

The national group comprising of educationists, child psychologists, educational technologists, broadcasters, media persons and researchers met for five days each year.

The group was provided with the available feed-forward data in the form of need assessment studies, profile of the audiences, feedback of the children to the programmes, and other relevant pieces of evidence collected from the field by the researchers.

The list of the topics and themes suggested by the group were further short-listed by another committee especially appointed for the purpose each time. The idea was to set priorities among the suggested themes and topics from the point of view of appropriateness. The committee had the additional task of preparing brief notes on each selected topic and series for the benefit of the script writers/producers.

Based on recommendations of the workshop and the committee an annual plan of ETV curriculum was prepared and distributed among the SIETs * for taking up production work.

The National Policy on Education, 1986 identified a few core areas in the curriculum which reflected national aspirations and present-day needs of the education of the children. The NPE suggested that to the extent possible the core areas should cut across all subjects and themes.

Taking congnisance of the new development, the CIET convened in Feb.'86 a national conference on educational television to discuss the role of ETV in implementing the new policy. It also discussed ways and means to make ETV programmes more effective in communicating educational messages.

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* Earlier, when the Doordarshan shared responsibility of programme production, the plan of ETV curriculum was sent to the concerned Doordarshan Kendras as well.

In 1987, the CIET compiled the recommendations in ETV curriculum made during different years to review the situation. The report indicated what series/topics had been taken up for production, and of these which series had been completed and which series were not completed. The report also brought out series which were yet to be taken up for production.

The work of determining the specific objectives and themes of the ETV programmes is an on-going process as new experiences and new insights are gained into the educational needs of the children, and the national aspirations.

1.3 Course Team Composition

Production of the ETV programmes is done in-house * with a view to keeping check on the quality and appropriateness of the programmes. There are seven production teams in the CIET. Each production team comprises of a producer, an assistant producer, a script writer and a researcher. A script writer and a researcher may be working in more than one team at a time. At times, the outside subject matter specialists are also associated with the team for a particular series.

1.4 Course Writing and Design

The topics and series of the ETV programmes are assigned in the beginning of the year to the specific production teams depending upon their competency and interest.

The script writers write the scripts in the forms of a story board. Available literature and content specialists are consulted according to the need and nature of the script. The researchers help them first study the level of understanding and comprehension of the child in the relevant content area, environment of the child and other relevant information.

The first draft of the script is discussed by the production team from the point of view of production, and accuracy and level of the content. Outside experts who may have been consulted before are also invited to join the discussion. The discussion is helpful in improving upon the script.

At times, the revised script is tested with the rural children of the relevant age-group with a view to studying its acceptability on the part of the children. The script may be again revised based on feedback obtained from the children.

The programmes are produced by CIET producers using the technical facilities and staff available in the institute. However, services of outside child talent, adult actors and musicians are requisitioned for the purpose of production.

1.5 Scheduling

About 80–90 new educational programmes of about 20 minutes duration each are produced by the CIET during a year. Beginning from 1984–85, more than 325 ETV programmes have been produced ** as detailed below:

	Age group		Teachers & others	Total
	5–8 Yrs.	9–11 Yrs.		
1984–85	22	18	19	59
1985–86	27	27	35	89
1986–87	22	28	50	100
1987–88	13	35	32	80
Total	84	108	136	328

The new programmes combined with such series of the programmes of the previous years as have proved to be more acceptable among the children are used to feed the satellite for about 220 working school days in a year. The telecast of the programmes in suspended during vacations. There are short vacations in autumns and winters and long ones in summers.

2. The Teaching-Learning Process

TV is a new medium which the rural children and the teachers are not used to. In a special training programme, the user teachers are trained to learn the use of TV in the teaching-learning process, and to play their role for its effective utilization.

The teachers are told that notwithstanding the potential of the medium, it has various limitations. Firstly, it is a one-way communication. Secondly, the viewers are required to move with the speed of presentation, and can not go back or ask for repetition. Thirdly, programmes are produced keeping a large section of the audience in view, and it is not possible to relate information to the experience and environment of every child. The teachers could help fill these gaps by undertaking pre and post telecast discussions, relating the given information to the immediate environment and past experience of the children, suggesting such activities, as could supplement the nessage given on TV and motivation them to learn from TV.

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* However, in a few cases, the production was commissioned to outside producers on an experimental basis.

** The CIET has also produced more than 700 regional language versions of ETV programmes during this period. In addition, the CIET has produced other educational programmes on request from other deptts. of the NCERT and other agencies. Notable among these are series on computer iiteracy and environment education.

In the matter of physical arrangement, the teachers are told that TV should be placed at the slightly higher height than the eye level of the children *. It is also not healthy for the children to sit close to the TV set. There should be a distance of about 7 feet between the set and the first row. The last row should not sit beyond 25 feet from the set. The ideal arrangement for seating the children before the TV should be within an angle of 30°, not exceeding 40°. To seat the children at a proper distance and angle and to avoid congestion in the room, it is suggested to the teachers that the two groups of children (5 – 8 and 9 – 11 years old) should watch the programmes separately, one after the other. The programme capsule provides for an interlude of five minutes for the change over.

The teachers are asked to watch the telecast of the programmes along with the children, take a note of the reactions of the children, and the points which the children seemingly find difficult and need further elaboration. The teachers are advised to discuss the programmes with the children so that the TV programmes get related to the class room work, their environment and experience, and the doubts of the children are clarified.

3. Delivery of the Materials

A quarterly schedule of transmission of the programme is prepared in advance. This is sent to the SIETs for them to duplicate and circulate among the TV schools in the cluster areas.

Earlier, an attempt was also made to prepare brief notes for the teachers on each programme included in the schedule. The SIETs were expected to circulate the notes along with the transmission schedule among the teachers for their help and guidance in conducting pre and post telecast discussions. However, the practice was subsequently abandoned as the SIETs did not find it practicable to regularly send notes to a large number of teachers.

As a large number of HPTs and LPTs relay the telecast of the ETV programmes, an arrangement has lately been made through the Department of Audio Visual and Publicity of the Government of India with a few Hindi vernacular dailies to publish the titles of the topics of the next day ETV programmes for the information of the general public in the Hindi belt. For this, a monthly schedule of the telecast of the programmes is sent in advance to the concerned newspapers.

4. Research and development

4.1 Programme Research

One of the major thrusts of research activities in ETV has been to provide such usable evidence as can be built into the process of planning and production of the programmes. This includes studies to assess the needs of the children for ETV support as perceived by the children themselves, teachers, parents, community leaders and community workers. The information is supplemented by observations of the researchers about the felt and unfelt needs of the audiences.

Need assessment studies are followed by studies of profile to the audience. Earlier attempts to make general and broad profile studies have given way to separate studies specific to the identified themes/topics. In particular, an attempt is made to study as to what the identified theme would arouse in the child, the existing conceptual and cognitive level, attitudes, fears, apprehensions and motivations of the child in accepting the idea, availability of resources in the environment, practical applications of the idea keeping the resources and constraints in view, and such other variables as may be relevant to the topic in hand for production. The latter approach has been found to be more rewarding and acceptable to the programme producers. In order that research input is looked forward to and made use of, interaction between the researchers and the programme producers/script writers is constantly encouraged. It has been experienced that involvement of script writers/producers in collection of data, at least during one or two initial visits to the field, to let them have a feel of the audience and their environment proves fruitful. Field visits are followed by face-to-face informal discussions. Notes prepared by the researchers are circulated in the discussion meetings.

Assessment of needs and study of profile of the audience are not a one-shot activity. The researchers alone or the researchers and producers/script writers in a team go back and forth in the field to interact with the audience, and with each other.

4.2 Programme Evaluation and Quality Control

To bring about constant improvement in the quality of the programmes, feedback of the children and teachers about the programmes is obtained on a regular basis for the benefit of the programme planners/producers. The feedback is obtained in a multiple fashion described as under:-

4.2.1 Testing the Programmes with the Children

This is done by taking the programmes on $\frac{1}{2}''$ VHS video tape to the rural schools, playing back the programmes to a random sample of the children of the specific age group, and observing and seeking their reaction to the programmes. Tools for obtaining reaction of the children to the programmes are prepared before hand. Different strategies of data collection are evolved for different programmes depending upon their format and objectives.

In quite a few cases, scripts are also tested with the children before these are taken up for production. In particular, scripts and programmes are tested in respect of initial productions in a series.

Because of the exigency of meeting the deadline of feeding the satellite, the CIET had to be contended with testing of the programmes after these are telecast. The exercise, however, provides an understanding of how to effectively communicate with the child on a given theme. The findings are useful in improving upon productions of similar nature in future.

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* The children generally squat on the ground in the classroom in the elementary schools in the rural areas.

4.2.2 Obtaining Reaction of the Children of the Target Areas through a Group of Selected User Teachers
It is not always easy to motivate teachers in general to send feedback of the children to programmes on a regular basis. They soon get tired of this. In order to overcome the problem, only a few teachers known to have taken a sustained interest in using TV for education are selected in each state, and are especially oriented in obtaining reaction of the children to the programmes. The trained teachers are provided with self-addressed stamped covers and stationery to enable them to send weekly reports on a regular basis. The analysis of the reports indicate what programmes are liked the most, what programmes are liked the least, and factors responsible for liking or not liking the programmes on the part of the children. The teachers are rotated over a period of time for the purpose of reporting.

4.2.3 Previewing the Programmes
There is a practice in the CIET of holding a preview session once a week on a fixed day when productions of the previous week are played back, discussed and commented upon by the in-house faculty and all those concerned with production of the programmes. Producers find the discussions useful for revising/modifying the programmes.

It has been observed that preview meetings help not only evaluate the productions, but also serve a training ground of how to comment meaningfully without sounding critical. It is recognised that listening to criticism with an open mind should be an important attribute of an ETV producer.

4.2.4 Inviting viewers' comments about the programmes
For this, a caption is inserted at the end of telecast of each programme asking viewers to mail their comments about the programme. Analysis of comments gives a fair idea about the reception of the different programmes on the part of the audience.

The feedback obtained from various sources mentioned above helps bring about continuous improvement in the quality of the programmes.

4.3 Salient Findings about Programme Acceptability

The experience has been helpful in developing an understanding of how effectively to communicate with the children through the medium of television. It has been observed that such programmes are more liked by the children as depict inherent traits of the personality of the child. Some of these traits found relevant for ETV production are:-

- a child is curious by nature. He likes to explore and discover things for himself.
- a child is spontaneous and uninhibited in asking questions as well as expressing his thoughts.
- a child imagines and fantasises.
- a child is playful, likes to move about and do things with his own hands.

It has been further observed that programmes which seek to interact with the viewers, and in which child actors participate with spontaneity are well received.

Inclusion of simply worded songs set to music, rhymes, and animation (puppets including) enhance the appeal of the programmes for the children.

Dramatised format also appears high on the list of liked programmes.

Other things being equal, the children easily identify themselves with the programmes which depict the social set up and the environmental milieu in which the child lives.

4.4 Strategies for monitoring and evaluating the total system

The CIET has also been monitoring the utilization of the ETV service in the INSAT States. This is done by using different techniques mentioned as under:

4.4.1 Inviting monthly TV utilization reports from the TV custodions
The TV custodions are asked to maintain a daily diary about the use of TV in the classroom in a proforma especially designed for the purpose. They are also required to prepare a monthly report on TV utilization in another proforma on the basis of the daily diary maintained by them during a month and to mail it in the first week of the following month. Sufficient copies of the two proformae, stationery and self-addressed stamped envelopes are made available to enable them to send the reports regularly.

The analysis of the reports is done to determine the utilization of the ETV service. It is, however, admitted that the recovery of the reports from the field is generally less than satisfactory. The estimates of utilization of the TV sets based on these reports are, therefore, at best indicative and suggestive rather than conclusive and definite.

4.4.2 Carrying out sample surveys and Indepth case studies
With a view to fully understanding factors which are responsible for the success of utilization or impede its progress, surveys are also conducted in each state. Under this method, a sample of the TV schools is taken at random. The field researchers, who are earlier oriented and trained for the purpose, visit each school in the sample to make on-the-spot observations and interview teachers and the children.

In addition, a few successful TV schools are studied in depth, and compared with a few other schools not so successful.

The exercise is helpful in evaluating the system at the receiving end, and in determining conditions for successful utilization of the programmes. The findings along with suggestions for improving the system are made know to the Central/State Governments in the form reports, and also discussed with them in the meetings.

4.4.3 Obtaining Feed-back reports from the Field Investigators
The Field Investigators posted in the INSAT states are also required to make detailed observations in respect of utilization of the ETV programmes in the TV schools visited by them on their routine visits. The information supplied by them supplemented by the findings of the sample surveys help draw a consolidated picture of the utilization of the programmes and how to improve the system.

4.5 Factors Affecting Utilization of the ETV Service

It has been observed that beaming appropriate educational programmes of high acceptability for the rural children and providing them with community receiving facilities is no guarantee by itself that the ETV service will be fully utilised. A number of other factors have been observed which also determine the utilization of the programmes. Some of the important factors are described as under:

4.5.1 Maintenance Sub-system
The states which had developed a proper sub-system for receipt of fault reports and expeditious maintenance and repair of the sets were doing better in programme utilization. It was found that TV sets being out of order was by far the most important reason for less than fuller utilization of the programmes.

Functioning of TV sets was more encouraging in respect of VHF sets compared to the direct reception sets (DRS) in all states. The DRS were more prone to develop faults, and more difficult to repair.

4.5.2 Coordination with other Agencies
The local Electricity Board may be an important agency to be reckoned with if the supply of electricity is erratic. Failure in the supply of power at the time of telecast of the programmes was observed to be the next most important reason for less than fuller utilization of the programmes.

4.5.3 Motivation of the User Teachers etc.
The utilization of the ETV programmes is better in a system which provides for continuous motivation and orientation of the user teachers, field supervisors and key personnel for effective use of the medium in improving the quality of education.

4.5.4 Selection of Schools
It has been observed that TV is better utilised in a small school compared to a big school. A Larger number of students in a big school creates problems of discipline in the TV room which discourages regular use of TV. Motivation and accountability of the teachers is better ensured in a small school. It is, however, important that the school is accessible throughout the year, and there is at least one room spacious enough to seat the viewers.

It can be said by way of conclusion that television is a new technology in the Indian school system. It requires new and appropriate infrastructures, lines of co-ordination, attitudes, motivations and competencies for its fuller utilization. This calls for creating and strengthening different sub-systems at various levels taking the systems approach.

4.6 Planned Strategies for Research and Evaluation

The future thrust of research in ETV would be on formative research which should further help improve the quality and acceptability of the software. This would include determining appropriate formats for different types of content matter, methodologies for testing scripts and programmes for their appeal and comprehension. Basic issues like attention span, cognitive development, visual literacy, humour and other factors for effective communication with the target audience would also be gone into.

It is also proposed to undertake a content analysis of the programmes produced so far to find out the behavioural instructional pattern of the educational television, with a view to making it more broadly based and comprehensive.

Monitoring of utilization of the ETV programmes would continue. However, the emphasis would be to determine suitable criteria for the selection of schools, and TV custodians, and parameters for setting up the maintenance sub-system.

D. COSTS

Production of the ETV programmes for the children and the teachers at the primary level for feeding the satellite is undertaken in-house. However, modalities for contracting out some productions to external eminent producers are also being worked out.

The CIET produces about 80–90 new ETV programmes, each of about 20 minute duration, every year.

Earlier, the CIET produced these programmes first in Hindi and later prepared regional languages versions for telecast in the non-Hindi states. Over the period, most of the SIETs have started producing programmes for the children and the teachers on their own. The CIET, however, continues to produce these programmes in Hindi, and their version in one more regional language namely, Oriya.

In addition to the programmes for feeding the satellite, the CIET produces educational programmes on request from other departments of the NCERT and other educational agencies. Notable among these Programmes are series on computer literacy, environment education, and capsules for the Mass Orientation for School Teachers under the National Policy on Education, 1986. During the last few years, more than 70 other educational programmes have been produced by the CIET.

It should be stated even at the risk of repetition that the CIET is not only a centre for production of ETV software, but also an apex training institution for creating competencies and capabilities in the country in ETV. The same staff and technical areas are used both for production and training courses. In addition, CIET offers consultancy in setting up technical areas, purchase of hardware and organising training programmes. This may be borne in mind while analysing costs of inputs in ETV production.

1. Staffing

The details in respect of the staff concerned with ETV production in the CIET may be seen in Appendix I. The summary with regard to the number of the staff is given in Table 1.1.

TABLE 1.1: Staffing Numbers

		Academic, Professional & Technical Staff	Support Staff.	Total
Number of full time staff		91	28	119
Number of part time staff		4	2	6
	Total	95	30	125
Full time equivalent of the part time staff		1.75	0.5	2.25
	Total	92.75	28.5	121.25

The yearly costs of the staff of the various categories are given in Table 1.2

TABLE 1.2: Staffing: Recurrent Costs *

		Academic Professional & Technical Staff	Supporting Staff	Total
		(Rupees)	(Rupees)	(Rupees)
Full time staff		230,300	50,000	280,000
Part time staff		26,000	9,000	35,500
	Total	256,300	59,500	315,800
Full time equivalent of the part time staff		10,700	4,750	15,450
		241,000	54,750	295,750
US $*		16,066	3,650	19,716

2. Non-Salary Recurrent Costs

As already mentioned, all production is undertaken in-house using the internal staff, equipment and technical areas. Maintenance of the equipment is also done in-house. Expenses are, however, incurred on purchase of video tapes, technical spares and insurance of equipment. The CIET co-ordinates the activity of feeding the Doordarshan at Delhi with the ETV programmes produced by it and by the SIETs in accordance with the schedule. The CIET also arranges to collect the used taped from the Doordarshan and to return these to the respective SIETs. The cost towards this is borne by the CIET. Main items of non-salary recurrent cost are indicated in Table 2.

TABLE 2: Non-Salary Recurrent Costs

Nature of non-salary recurrent items	Average cost (Rs.)	Expected life
i. Video Cassettes	80,000.00	5 years
ii. Technical spares	300,000.00	5 years
iii. Insurance of equipment	25,000.00	1 year
iv. Despatch of video materials/ used tapes	50,000.00	NA
	455,000.00	
US $	30,333.00	

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* US $ = 15 Rupees.

3. Capital Costs: Buildings

As at present, different Divisions of the CIET are dispersed at four different locations. A new building is coming up in the campus of the NCERT. Likely to be completed by the beginning of 1989, it will accommodate administrative offices and technical areas in respect of video, audio, graphics, film and photography. It will have two video and two audio studios. The existing TV studios will also be retained.

The estimated cost of the building is indicated in Table 3.

TABLE 3: Capital Costs: Buildings

	Area in Sq. metres (Plinth area)	Capital cost per Sq. metre (Rs.)	Expected life (yrs)
Office Buildings	1,550	4,000	50
Technical buildings	4,025	9,500	50
Service area	3,779	3,000	50
Total cost	9,354	54 million	
	US $	3.6 million	

4. Capital Costs: Equipment

The main items of equipment for production of ETV programmes, capital cost per unit, total cost and the expected life in years is indicated in Table 4.

TABLE 4: Capital Costs: Equipment

Item	Number of Units	Cost per Unit (Rs.)	Total cost (Rs.)	Expected life in years
i. Studio TV Camera Chain	3	1,400,000	4,200,000	12 yrs
ii. ENG Units	5	310,000	1,550,000	5 yrs
iii. Vision Mixer	1	941,000	941,000	10 yrs
iv. Audio Mixer	1	120,000	120,000	10 yrs
v. Telecine Unit	1	2,562,000	2,562,000	12 yrs
vi. Colour Monitor (20″)	4	89,000	356,000	12 yrs
vii. B/W monitor(12″)	6	18,000	108,000	12 yrs
viii. Video editing units	4	200,000	800,000	7 yrs
ix. VTR – one inch	4	1,200,000	4,800,000	10 yrs
x. Tape play back deck	4	80,000	320,000	5 yrs
xi. Studio lights	40	150,000	150,000	10 yrs
xii. Light Dimmer System	1	300,000	300,000	10 yrs
xiii. VCR – Umatic 3/4″	3	71,000	213,000	7 yrs
xiv. Microphones	10	5,000	50,000	4 yrs
xv. Direct Reception Set	1	35,000	35,000	5 yrs
xvi. OB Van	1	5,000,000	5,000,000	10 yrs
xvii. Zero X machine	1	75,000	75,000	10 yrs
xviii. Metador Van (Transportation)	1	110,000	110,000	8 yrs
			Rs 21,690,000 (US $ 1,446,000)	

5. Free Inputs from Other Institutions

Designing, fabrication and launching of the space craft, INSAT–1B, was undertaken by the Department of Space. Using its TV transmission capabilities, Doordarshan in the Ministry of Information and Broadcasting telecasts ETV programmes during the working school days, and teachers' training programmes under the national scheme of Mass Orientation for School Teachers during summer vacations. Uplinking with the satellite for the telecast of these programme is done from Delhi. The ETV programmes are telecast for a total duration of 3 hours and 45 minutes daily during working school days, and teachers' training programmes for one hour daily during the training sessions in summer vacations. This service is provided free-of-cost by Doordarshan.

Till 1984, Doordarshan Centres in the respective INSAT states contributed towards software production by producing children's ETV programmes for three days a week at their costs.

Identification of the TV schools and deployment of more than 4,000 community receiving sets * in the selected clusters was also undertaken by Doordarshan.

6. Viewers

As already mentioned, more than 4,600 community receiving sets have been deployed in the selected clusters, mostly in the rural primary schools of the six INSAT states. Based on data gathered from the field, it can be said that on an average about 60% of the TV sets are functional at one point of time, with about 110 children around each set. Each TV school has 3–4 primary teachers who also benefit from the programmes.

The size of the audience seems to have increased manifold with the relay of the programmes by all high and low power transmitters in the six INSAT states, and relay of Hindi version of the programmes in four more Hindi speaking states and one union territory since October, 1984. A large number of children (and also youths and adults) of semi-urban areas and cities watch ETV programmes regularly in their homes using private receiving sets. Some institutions are also reported to have acquired receiving sets using their own resources and taking advantage of the subsidy offered by the state governments for the purchase of sets for the benefit of the children and the teachers. In the expanded programme of providing community receiving sets, the Ministry of Human Resource Development has planned to supply around 90,000 colour TV sets all over the country during the current five year plan ending 1990. With this, the size of the audience is expected to go up further substantially.

7. Sources of Financing

The CIET, being a constituent unit of the NCERT, which is an advisory wing to the Ministry of Human Resource Development, is fully financed by the Ministry. The CIET as a whole was granted a budget of Rs. 12.33 million to carry out its different activities and programmes, including educational television, during 1987–88. In addition, some assistance in the form of consultants, fellowships, training courses and equipment was awailable under the INSAT for Education, UNESCO/UNDP Project (IND/83/016) during the period 1984–1988. The total assistance was to the tune of $US 2.3 million.

UNICEF also provided funds amounting to Rs. 8.2 million for carrying out such activities in media planning, production and utilization as might help the young children.

During 1987–88, UNESCO placed some funds at the disposal of the CIET to produce a package of materials including ETV software on environment education, and audio programmes for out-of-school and disadvantaged population.

E. EDUCATIONAL OUTCOMES

1. Student Performance

Television is a developing medium for information and entertainment in India. Its popularity is on the increase not only in the metropolitan cities, but also in small towns and rural areas, thanks to a large network of HPTs and LPTs all over the country. Apart from community receiving sets supplied by the state in selected rural clusters, a number of institutions are going in for these on their own. Some state governments offer a substantial subsidy to enable institutions in the rural belt to own a receiving set. The number of privately owned receiving sets is also increasing rapidly, particularly in the urban localities.

The decision taken by the Govt. of India to relay the telecast of the ETV programmes by all HPTs and LPTs in the six INSAT states, and to relay the Hindi version of the programmes by all HPTs and LPTs in another four states and one union territory has helped disseminate the programmes in a much wider territory than envisaged initially. Much of the expansion in reception has taken place in the semi-urban areas and small towns. A few cities have also benefited.

This has gone a long way in reaching an ever increasing number of the target audiences viz. in-school and out-of-school children and teachers at the primary level.

By and large, the target groups have liked the ETV programmes. They find these interesting and useful and a refreshing approach in the teaching-learning process.

Some of the typical comments made by the children in their letters to the CIET are reproduced as under:–

> "The programmes are quite interesting and entertaining. We like them very much".
> "We like your programmes as these are not only entertaining but educational as well".
> "The programmes offer a great variety of educational situations and experiences".

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* In addition, about 650 VHF sets continued since SITE in 1975–76.

"ETV programmes are good for both bright and not so bright children".
"The programmes are educational not only for children but for teachers as well because these give information about such things as teachers may not themselves be fully aware of".

In a study conducted by the CIET in Orissa in 1983 covering 887 children spread over 31 rural TV schools, it was found that the children of the TV schools did significantly better on the achievement test on social studies and science compared to a matching group of children of non TV schools.

The teachers are also reported to have developed a favourable attitude towards educational television and look upon the medium as a useful intervention in the teaching-learning process.

2. Programmes, Materials and Services

Some educational institutions, nationally as well as internationally, have started showing interest in the educational video/audio programmes produced by the CIET. To meet the demand, the CIET has completed negotiations with the Electronics Trade and Technology Development Corporation, a Public Sector Undertaking of the Govt. of India, to function as their agents for sale of their video programmes at a cost of about Rs.100/– each 40 minute cassette. The cassettes are likely to be available on sale from the summer, 1989.

The Institution also arranges to supply on demand its educational audio programme, films and tape-slide programmes and charts to educational institutions on no-profit no-loss basis.

Films are also loaned from the Central Film Library of the Institution which has a stock of more than 8,000 educational films to about 4,500 member institutions free of cost.

3. Changes in Educational Philosophy and Practices

After the success of SITE in 1975–76 and now with INSAT, there is a growing realization in the country that mass media, particularly radio and television, can play an important role in achieving the ends of universalization of elementary education and teacher training.

Under the recent drive in the country to provide essential facilities in primary schools, symbolically called OPERATION BLACKBOARD, there is a provision to supply radio-cum-audio cassette players to the primary schools all over the country in a phased manner.

Already, a few institutions offering education through correspondence have started integrating radio/audio lessons with the print media. The electronic media have been assigned a significant role in the future open and distance learning institutions envisaged under the National Policy on Education, 1986.

Andhra Pradesh, a state in the southern part of the country, has recently supplied video cassette players to about 1,000 primary schools on an experimental basis. Supporting cassettes containing visualization of the primary school syllabus covering a duration of 10–12 hours have also been prepared and supplied to the schools.

The curriculum for training of teachers in the training institutions has undergone a change to allow for orientation of teacher trainees in educational technology and for building motivation among the teachers to use media for effective communication with the children.

In the national scheme of mass orientation for school teachers formulated by the Ministry of Human Resource Development, it was envisaged that media support in the form of ETV programmes telecast through INSAT–1 would form an important component of the training package. Launched in 1986, the target is to reach about 500 thousand primary and secondary school teachers each year during the current Five Year Plan (1986–90) with the objective to create an appropriate climate for generating new initiatives in school teachers and other functionaries for the implementation of the National Policy on Education 1986. It is planned to organise 10,000 training camps of 10 – day duration in 3–4 cycles during summer vacation each year. In 1986 and 1987, about 900 thousand teachers and other educational functionaries were oriented all over the country through more than 9,000 camps each year.

The training is through modules of print lessons, activities, discussions and TV programmes. The CIET has the responsibility of preparing the ETV package. Making help of the programme schedule and briefs which are sent in advance to the organisers, the resource teachers discuss with the participants the objectives of a programme before it is telecast and follow it up by discussion through post-telecast activity.

There is thus evidence of greater reliance and faith in the country in media based systems for solving some of the pressing problems in education at the primary level both in the conventional and non-conventional systems.

4. Impact on Society at Large

There is evidence to show that in addition to the audience in the target clusters, a large number of urban children and teachers are also receiving the benefit of the ETV programmes. If viewers' mail is any indication, the number of unintended audiences seems to be quite large. It is felt that not only young children but children of higher age groups and adults also enjoy watching these programmes.

Quite a large number of these children watch the programmes on their privately owned receiving sets outside the school hours. For them, television has become an extension of the learning experience.

Impressed and encouraged by the potential of the medium, a number of viewers have been coming forward to give valuable suggestions for improving the quality of programmes and their utilization, and appropriateness of the content. At times, offers for participation in the programme as well as contribution towards writing of scripts are also received.

The impact of the project on the society at large seems to be encouraging. There is a reason to believe that there is greater success of the programmes among the children if adults in general become the motivating force for them to regularly and consistently watch the educational programmes designed for them.

F. THE FUTURE: TRENDS AND PRIORITIES

Introduced on a pilot-project basis with the establishment of a Centre at Delhi in 1959, television was soon pressed into school education with the launching of curriculum based programmes at the secondary level in October 1961. About 600 schools of Delhi were provided with TV sets.

This was followed by three more TV centres namely, Bombay, Madras and Srinagar taking up production and telecast of syllabus based programmes at the school level.

There was a shift of emphasis from school television to educational television during the Satellite Instructional Television Experiment in 1975–76. It was realised that the medium can be more fruitfully utilised by exposing the children to enrichment programmes designed to broaden their outlook, widen their experience, bring them joy in learning and motivate them to learn by doing things/activities using materials available in the environment. It was further recognised that the educational authorities should themselves take up the responsibility of production of the programmes if the idea is to produce appropriate software. The need to decentralize production to be able to produce local language, environment and need-based programmes was also recognised. The plans prepared for utilization of the first Indian National Satellite in 1982, therefore, identified that one of the major objectives of using satellite-based communication would be to develop it as an alternative approach to education for young children by setting up local production centres managed by the state educational authorities.

The SITE effectively demonstrated the potential of educational communication to large numbers in remote areas at low costs through satellite. The National Policy on Education, 1986 emphasises that in order to avoid structural dualism, modern technology must reach out to the most distant areas and most deprived sections of beneficiaries simultaneously with the areas of comparative affluence and easy availability. This approach intrinsically favours the use of broadcast methods with their inherent advantages of greater reach, convenience of management and cost effectiveness. Educational broadcasting can become a major instrument of education as well as a significant component of distance and alternative learning systems, means of information, enrichment, value orientation, vocational/skill training and training of teachers. Mass media has, therefore, a major role to play in the achievement of the objectives of the National Policy on Education.

The coverage by TV service is expected to increase to 80% of the population by the end of the VIIth Plan (1985–90) period. The scheme provides for setting up a number of HPTs and LPTs * all over the country, augmenting microwave links in six States, establishing satellite uplink facilities in eight others using facilities on board INSAT–1B and 1C (the latter is likely to come up shortly as a standby to 1B), and setting up state networks which would rediffuse regional language programmes from the State capitals to the HPTs and LPTs located in the State **. The revised plans for utilization of the second generation group of satellites (INSAT–11) in early 1990 envisage the use of seven C-band transponders in half-transponder mode to accommodate a separate educational service in addition to primary service in the regional language. In the post INSAT–11 time frame (late 1990s) the Ministry of Information and Broadcasting has projected the requirement of additional TV transponders, and a dedicated country-wide channel of terrestrial transmission for exclusive relay of educational programmes in various languages/states. It is possible to establish such a dedicated educational network by 1991–92.

Bearing in mind the rapid expansion of broadcasting facilities projected with the advent of INSAT, the Govt. of India have taken steps to overcome two critical constraints namely, requisite software and availability of viewing facilities for fuller utilization of the programmes.

To meet the demand for educational software, the then Ministry of Education decided to take on the responsibility of production of ETV programmes. Accordingly, a centrally sponsored scheme was prepared by the Ministry in 1983 for setting up ETV Production Centres in the NCERT (CIET) and the six states (SIETs) and strengthening of Educational Technology Cells (ET Cells) in other states by provision of extra staff and equipment on a modular basis to prepare them for future responsibilities. It may be mentioned that ET Cells were set up in 21 states under the IVth Plan in 1970s aimed at the use of educational technology for widening access to and bringing about qualitative improvement in education and removal of existing disparities between different regions of the country as well as different sections of the population.

Assistance to ET Cells under the revised ET scheme has envisaged financial assistance for setting up limited facilities for production of TV and radio programmes in non-INSAT states/union territories so that they could experiment in production of programmes and organising training courses.

It is fully recognised that the existing facilities for ETV programme production would not be able to cope with the future multilingual demands of the software. SIETs or similar autonomous institutions would have to be set up in the remaining states to cater to the needs of the children (in and out-of-school) and teachers. Setting up of six new SIETs in six additional states during the current seventh Plan period is under consideration. Creation of additional programme production facilities would make it possible to extend minimum ETV coverage to the major language zones in the country.

One major constraint in fuller utilization of ETV service is the availability of viewing facilities. While there has been a dramatic increase in the number of television receivers, less than 5% of the households presently own a TV set. Home viewing of television would, therefore, remain a distant dream for the majority of people for quite sometime in future. School viewing facilities that will provide access to the medium especially to children in rural areas are, therefore, considered inescapable and essential if the educational potential of the medium is to be effectively utilised.

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* Already, there are more than 225 HPTs and LPTs in the country.

** The states of Maharashtra and Andhra Pradesh have already been covered under this scheme.

It is proposed by the Govt. of India to take up a phased programme of providing TV sets and radio-cum-cassette player to schools. Colour TV sets are proposd to be provided to additional 90,000 elementary schools (with primary sections) and radio-cum-cassette players to all primary and elementary schools (625 thousand) in the country in the remaining years of the VIIth plan period.

The aim of achieving universalization of elementary education dictates priority for primary and upper primary levels. Moreover, secondary and higher secondary schools being much smaller in number, they can more effectively be covered through video technology. It may not be cost effective to telecast programmes for these schools in view of the number of languages involved. Also, experience in the past for broadcasting programmes for higher classes have not very successful since it may not be possible to keep pace with the classroom teaching and bring about the kind of co-ordination between the two.

The programme for the primary children are produced with the idea that these programmes are enjoyable to the child in his age group/ environment. While these programmes do not specifically relate to classroom lessons, the ideas behind some of these programmes are derived from the school curricula. Thus enrichment and subject matter related programmes are both viable and a mix of the two will be the appropriate strategy for the future.

APPENDIX I

Staff for ETV Production

		FULL TIME	PART TIME
A.	ACADEMIC		
i.	Joint Director	–	1
ii.	Professor – Scriptwriting & Training	1	–
iii.	Professor – Production	–	1
iv.	Reader – Scriptwriting & Training	2	–
v.	Lecturer	4	–
vi.	Scriptwriter	2	–
vii.	Producer Gr. I	4	–
	Gr. II	4	–
	Gr. III	6	–
B.	RESEARCH		
i.	Reader	–	1
ii.	Lecturer	1	–
iii.	Field Investigator	2	–
C.	TECHNICAL		
i.	Professor (Engineering)	–	1
ii.	Senior Engineer	2	–
iii.	Assistant Engineer	5	–
iv.	Engineering Assistant	16	–
v.	Cameraman	7	–
vi.	Sound Recordist	1	–
vii.	Projectionist	2	–
viii.	Technician	12	–
ix.	Lightman	2	–
x.	Draftsman	1	–
xi.	Tracer	1	–
D.	PROFESSIONAL		
i.	Graphic Artist Gr. I	1	–
	Gr. II	2	–
	Gr. III	1	–
ii.	Graphic Assistant	1	–
iii.	Set Designer	1	–
iv.	Floor Assistant	4	–
v.	Carpenter	2	
vi.	Semi Professional Assistant	1	–
vii.	Electrician (ad-hoc)	2	–
viii.	Make-up Artist	1	–
		91	4
E.	SUPPORTING		
i.	Officer on Special Duty	–	1
ii.	Under Secretary	–	1
iii.	Section Officer	1	–
iv.	Assistant Programme Coordinator	1	–
v.	Assistant	1	–
vi.	Upper Division Clerk	3	–
vii.	Lower Division Clerk	4	–
viii.	Personal Assistant	1	–
ix.	Stores Officer	3	–
x.	Assistant Stores Officer	1	–
xi.	Stores Keeper	1	–
xii.	Driver	3	–
xiii.	Helper	9	–
		28	2

UNESCO
Project Report

A Case Study Taken Under the UNESCO Project on the Study of Asian Institutions Making Large-Scale Use of Communications Technologies for Educational Purposes

October, 1988

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1. National Profile

1.1 Geography and Population

1.1.1 Geography
China is situated at the east of the Asian landmass on the west coast of the Pacific Ocean. The land covers more than 5,200 kilometers from east to west, extending for over sixty degrees of longitude, and 5,500 kilometers from north to south, or over forty-nine degrees of latitude. With a surface area of 9.6 million square kilometers, which is one-fifteenth of the total world surface, it is the biggest country in Asia and the third largest in the world, being surpassed only by the Soviet Union and Canada.

1.1.2 Administrative Divisions
China is divided into twenty-two provinces, five autonomous regions, and three municipalities directly under the central government.

1.1.3 Population
China has the largest population of any country in the world. The 1986 census put the total population at over 1,060,080,000 or 22.6% of the total world population. Nearly eighty percent of China's population live in the countryside, and the most populous province is Sichuan in the southwest.

1.1.4 Nationalities
China has fifty-six nationalities, but the Han Chinese account for 93.3% of the total population. The remaining fifty-five nationalities are referred to as "minority nationalities", although they inhabit some sixty percent of the total land area, mainly in the southwest, and northeast regions.

The Han language, generally known as Chinese, is the common language of the whole country. Modern Chinese takes the Beijing pronunciation as its standard pronunciation, the northern dialect as its basic dialect, and exemplary writings in the vernacular as its grammatical standard. All the minority nationalities, except the Hui, Manchu and She, have their own commonly used languages, and it is common for them to exchange languages.

1.2 Economy and Development

1.2.1 Economy
The main activity is in agriculture but in volume terms China is a leading world industrial power with manufactured goods making up more than half of its export earnings. The four Modernizations (covering agriculture, industry, defense, and science and technology are well under way).

As a result of the reform and the open policy, the economy has been developing steadily over the past few years. The average annual growth rate was 11.1%, and in 1987 gross national output, calculated in terms of comparable prices, reached 1,092 billion yuan (about 293.5 billion US $, the ratio of which was 3.72:1, in 1987.). The economy developed quite rapidly with little fluctuation. National income grew at an average annual rate of 10.7%, and in 1987 it reached 915.3 billion yuan, again calculated in terms of comparable prices.

1.2.2 Development
The country has set ten major tasks for economic development:

a. Step up agricultural production land and substantially strengthen basic industries and infrastructure, so as to maintain steady economic growth.
b. Accelerate the development and reform of science, technology and education, so as to push forward economic development through advances in science and technology and improved quality of the work force.
c. Carry out comprehensive supplementary reforms to deepen the form of enterprises and gradually establish the dominant role of the new economic structure.
d. Lose no time in implementing a strategy of economic development for the coastal regions and open wider to the outside world.
e. Carry out a genuine reform of the structure of government organizations to overcome bureaucratism, raise efficiency and tighten law and discipline.
f. Further strengthen socialist democracy and the socialist legal system, safeguard equality and unity among nationalities and consolidate and develop political stability and unity throughout the country.
g. Create an advanced socialist culture and ideology so as to further the smooth progress of reform and the opening to the outside world and to ensure the success of our drive for modernization.
h. On the basis of the current situation and future requirements, implement the two basic state policies of family planning and environmental protection.
i. On the basis of increased production, raise the incomes of urban and rural people and improve their material and cultural life.
j. Further strengthen the building of national defense as our economy develops.

1.3 Education

The education enterprise of the People's Republic of China has inherited a very weak and underdeveloped infrastructure of education and culture from an economically backward old China. Under the guidance of the Chinese Communist Part and the People's Government, education in China has made great progress since Liberation (referring to the founding of P.R. China in 1949).

In the semi-feudal and semi-colonial old China, education was extremely backward. Eighty percent of her population were illiterate and the enrollment ratio of school-age children was as low as twenty percent. In 1947 there were altogether 207 institutions of higher education (including short-cycle ones) in the whole country, with a total enrollment of 155, 036; in 1946 there were only 5,892 secondary schools with a total enrollment of 1,878,523; and there were only 289,000 primary schools with a total enrollment of 23,683,492. In 1946 there were only 130,000 infants enrolled in kindergardens, and there were only 2,322 children enrolled in schools for the blind and deafmute. The geographical location of schools was extremely irrational. Most higher educational institutions and specialized secondary schools were located in large and medium-size cities and the coastal provinces; and the majority of primary and secondary schools were located in cities and towns, with very few in the countryside. Education was even more backward in the hinterland and outlying provinces and regions and in the areas inhabited by the national minorities. The total enrollment of schools of various types and levels was only 5.6% of the total population. During the thirty six years before liberation, there were altogether 210,800 people graduated from colleges and universities, and the fields of study established in them hardly met the needs of the nation.

Since Liberation the old educational system was subject to radical reform. Education at various levels and of different types has made rapid progress. In comparison with the highest level reached during preliberation days (for higher education it was 1947, and for primary and secondary education it was 1946) the total enrollment at the third, second and first levels increased by 6.8; 23.7 and 4.7 folds respectively. The net enrollment ratio of primary school-age children has reached 94%, the percentage of illiterates and semiilliterates among the population above 12-years of age has been reduced to about 30%, and pre-primary education as well as adult education of various types and levels has made great progress, too.

From 1949 to 1987, 5.64 million of students graduated from her institutions of higher education, and 9.10 million from secondary specialized schools, forming the backbone of her professional and semi-professional manpower. Various types of vocational schools and general secondary schools have become major sources of her massive labor reserve, the total output from senior secondary schools being 71,422,400 and that from junior secondary schools 229.8 million and that from agricultural and vocational schools 3.12 million. They all have given strong support to the cause of socialist construction.

In 1987, there were 385,000 full-time teachers in all types of institutions of higher education, which is 22.6 times the number of 1947, there were 3,266,000 teachers employed in all types of secondary schools (including 588,000 mainly paid by the communities), which is 30.5 times the figure for 1946; there were 5,434,000 in all types of primary schools (including 2,990,000 mainly paid by the communities or collectives), which is 6.1 times of the figure for 1946. Now there are altogether 14,392,000 teaching and other staff and workers employed in schools of various descriptions, being 13 times of the figure for 1946.

2. Educational Profile

2.1 General Principles of Education

A vital factor for the success of China's Four Modernizations lies in the availability of skilled people, which requires us not only to give full rein to the skilled people now available and to further enhance their capabilities, but also to train, on a large scale, people with new types of skills who are dedicated to the socialist cause and to the nation's economic and social progress into the 1990s and the early years of the next century. We need to train millions upon millions of workers in industry, agriculture, commerce and other fields, who are well-educated, technically skilled and professionally competent. We also need to train tens of millions of factory directors, managers, engineers, agronomists, economic experts, accountants, statisticians and other economic and technological personnel who are equipped with modern knowledge of science, technology and economic management and imbued with a pioneering spirit. And we need to train tens of millions of educators, scientists, medical workers, theoreticians, cultural workers, journalists, editors, publishers, workers in the fields of law, foreign affairs and military affairs as well as Party and government workers who can keep abreast of developments in modern science and culture and the technological revolution. All these people should be persons of moral integrity with lofty ideals, well educated and disciplined, have an ardent love for the socialist motherland and the socialist cause, and work with education for the prosperity of the country and the people. They should constantly pursue new knowledge and cultivate the scientific spirit of seeking truth from facts, thinking independently and daring to make innovations. This presents a tremendous and arduous task in the development of China's education and therefrom of the educational structure. In order to fulfill the task, the Chinese government has put forward its general principles of education as follows:

> "Education must serve socialist construction, which in turn must rely on education".
> "The fundamental aim of restructuring education is to improve the quality of the nation and produce as many skilled people as possible".

2.2 Preschool Education

In 1987, China had 176,715 kindergartens with 941,088 teachers and a total enrollment of 18,078,400 children, a hundred times of the number before liberation.

2.3 Primary School Education

According to 1987 statistics, there were over 807,400 primary schools throughout the country, tripling the Preliberation peak year of 1946 when there were only 28,900 primary schools. Pupils totaled 128,360,000 nearly 5.5 times as many as in 1946, when there were 23,683,000 in all.

2.4 Secondary School Education

In 1987, China had 92,800 secondary schools with a student population of 49,481,000 (7,737,000 in senior secondary schools and 41,744,000 in junior-secondary schools).

With regular secondary schools being expanded, measures have been taken to speed up development of vocational and technical secondary education. There were 3,913 specialized secondary schools in China in 1987, they enrolled 715,000 students. The 51,568 specialized adult secondary schools of all types enrolled 847,000 students. Technical training schools recruited 7,360,000 students (estimated figure).

2.5 Higher Education

In 1987 there were 1,063 institutions of higher learning in China, including 602 universities and colleges, 339 training schools and 122 short-term vocational universities.

Universities and colleges geared their enrollments and job assignments to the country's urgent need in its economic construction and social development for personnel with advanced professional skills. They exploited their potentialities and enrolled 617,000 students, for a total of 1,958,725 (1,277,805 in undergraduate courses and 680,920 in special courses). Among the 1987 enrollees 332,365 were in undergraduate courses and 284,457 in special courses. There were also 60,400 students entrusted by various organizations to colleges for training, 79,100 in special training courses for cadres, 11,400 in undergraduate courses or special courses for teachers, and 32,800 day students for whom the colleges would not assign jobs upon graduation. Universities, colleges and scientific research institutions throughout the country enrolled 34,882 postgraduates, working toward doctor's or master's degrees.

3. Higher Education Profile

3.1 Conventional Universities

The number of conventional universities increased from 598 to 1,063 during the 9 years from 1978 to 1987. The number of teachers rose from 206,000 to 385,000 and the institutes turned out 2.7 million college and junior college graduates, about the equivalent of the total number trained in the 30 post-liberation years. About 180,000 students finished their post-graduate courses, (four times the number of the previous 30 years), and the first group of 1,200 Ph.Ds passed through the universities.

At present, China's conventional universities and colleges have 1.96 million students, (1.1 million more than in 1978); 120,000 post-graduates in master's programmes, 12 times as many as in 1978; and nearly 10,000 foreign students from more than 110 countries and regions the world over. These institutes have since sent 50,000 students to study in 76 countries and regions, about four times as many as in the 16 years from 1950 to 1966.

The stable growth of higher education has much to do with the ongoing educational reforms.

The number of institutions by field of study is as follows (1987):

a. Comprehensive University	47
b. Engineering College	272
c. Agriculture College	61
d. Forestry College	11
e. Medicine & Pharmacy College	120
f. Teacher Training College	260
g. Language & Literature College	14
h. Finance & Economics College	75
i. Political Science & Law College	25
j. Physical Culture College	16
k. Art College	30
l. Others	132
Total:	1,063

With 1,959,000 students and 968,657 staff in 1987, the major task for these regular higher educational institutions is to offer degree courses. In recent years, they are also active in non-degree education.

3.2 Non-conventional Universities

3.2.1 Evening Schools and Correspondence Divisions

Evening schools and correspondence divisions are affiliated schools of regular higher educational institutions. The number of these schools and divisions was 378 in 1983. But there has been a rapid increase in recent years. Nearly all the regular institutions have set up their affiliated schools.

The enrollment of these schools and divisions had reached 169,027 and the registered students were 612,771.

In 1987, four independent correspondence colleges had 33,266 registered students, 465 full-time staff. 268 teachers training colleges had 251,203 registered students, 48,358 full-time staff and 1,171 part-time teachers.

About 337,906 students were studying in 915 technical colleges for workers and staff, which kept 78,936 full-time staff and 11,348 part-time teachers.

Five agricultural colleges had 1,104 registered students with 420 full-time staff.

268 cadres training colleges had 55,768 students, with 36,462 full-time staff and 1,727 part-time teachers.

3.2.2 Higher-education Self-Study Examination

Higher-education self-study examinations are state examinations for self-taught students. They are conducted by the Higher-Education Self-Study Examination Guidance Committee in various provinces, autonomous regions and municipalities directly under the central government, with state authorization. Those who have acquired a sufficient number of credits are entitled to receive graduation certificates for specialized courses or regular college courses. Their school records are recognized by the state. They receive the same treatment as graduates from ordinary institutions of higher education.

Examinations have been conducted in 148 specialized subjects in the liberal arts, science and engineering, finance and economics, and political science and law. Nearly two million people across the country have registered for such examinations.

In the past 8 years, about 270,000 certificates of qualification for individual courses have been issued, and 124 people have got Ph.D.

The system of higher-education self-study examination in China is characterized by extensive adaptability, multipurpose flexibility and true economy in saving financial resources of the country.

3.2.3 Radio and TV Universities

Radio and TV universities are a new type of institutions of higher learning, engaged in long-distance teaching through various media. There are three TV university systems in China.

The China Radio and TV University is one of the biggest universities in the world, which will be described in detail later.

The China's TV Normal College is a newly established higher education institution specially for secondary and primary school teacher training. It started in 1986, working as coordinator between regular higher education institutions and local teacher training colleges. The regular higher education institutions offer teaching materials and produce TV programmes, and the local teachers training colleges conduct the teaching administration. It has about 100,000 students at present (estimated figure).

A third TV university is being prepared and is to open in the near future, which is specially for aged people. The figure of aged people in China is about 93 million (1987 statistic).

4. China Radio and TV University

4.1 History

China was one of the first countries to use radio and television for higher education purposes. During the early 1960s, soon after television broadcasting began to develop in China, the first television universities (TVUs) were founded in Beijing, the capital, and other principal cities to meet the demand for adult education. This new type of universities were well received and showed great potential as soon as they came into being. During the period from 1960 to 1966, more than 8,000 students graduated from the Beijing Television University and over 50,000 students finished single-course studies through its teaching programmes. Most of them went on the make valuable contributions to industrial and agricultural enterprises or to cultural and educational institutes. The television universities of other places were all equally successful. Unfortunately, this newly emerging initiative was interrupted by the "Cultural Revolution" (1966–1976).

Since 1976, China has entered a new historical period. The socialist modernization project calls for a large number of trained people.

As TVUs need fewer funds and can train more people in a shorter period of time, the State Council approved a report jointly submitted by the Ministry of Education, the Ministry of Broadcasting and other ministries concerned on the founding of a national radio and television university in February 1978. After a year's preparation, the Central Radio and Television university (CRTVU) was set up in Beijing. After that a system of higher education through radio and television was formed by the CRTVU, 43 provincial radio and television universities (PTVUs), 1,221 prefectural/civic branch schools and about 3,000 district/county work stations, and more than 20,000 TV classes.

4.2 System Structure

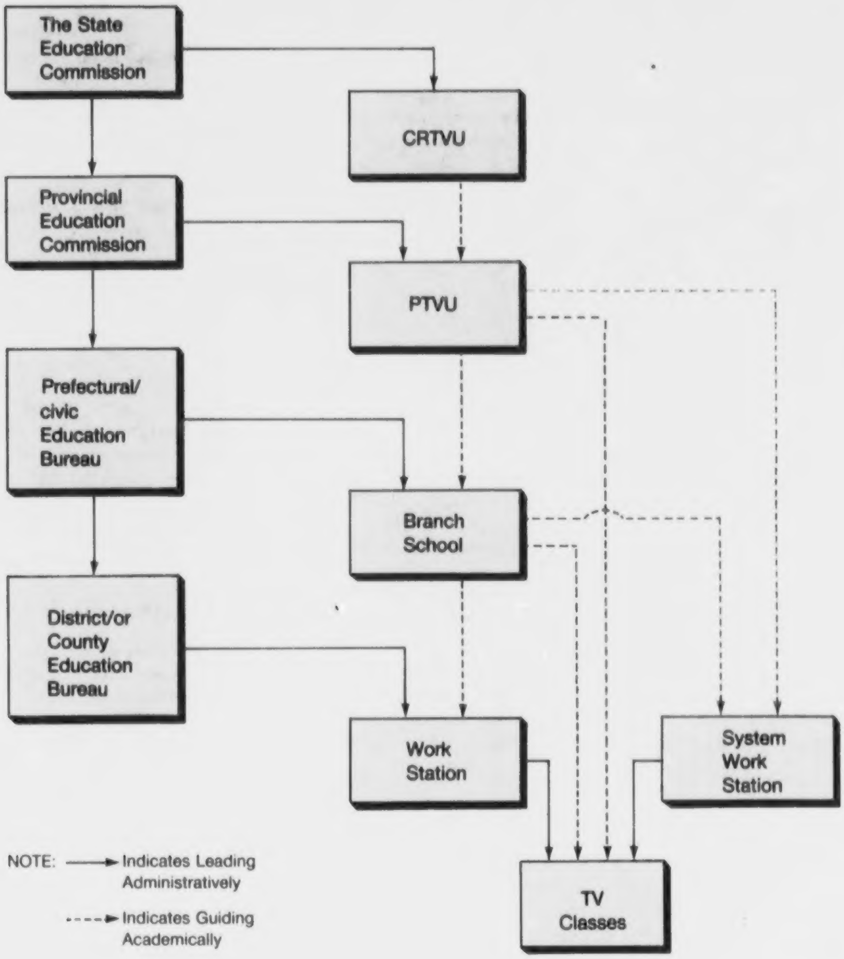
Radio and television universities are run at five levels, corresponding to the organization of China's system of national and regional governments. The CRTVU, at the highest level, is under the direct leadership of the State Education Commission (formerly called Ministry of Education). The PTVUs, at the second level, are under the auspices of provincial governments; and their branch schools, at the third level, under prefectural/civic governments. Work stations, at the fourth level, are run either by district/county education bureaus or by a particular industry. The teaching and learning classes (usually called TV classes), at the lowest level, work directly with TVU students. There are four kinds of TV classes:

a. classes run by local government bureaus (a bureau, here, means a department of a local government with responsibility for education, or industry of similar);
b. classes run by big factories and mines;
c. classes run jointly by medium-sized or small work units;
d. classes run by local TVUs at various levels to cater for fresh secondary school graduates or for young school leavers waiting to be assigned jobs. The kind of TV classes for young school leavers are also run by large state-owned enterprises.

China's radio and television universities at five levels share their responsibilities on the basis of balancing centralization and decentralization with the CRTVU as their center.

In recent years, cooperation has been developed among PTVUs, for instance, TVUs of Beijing, Tianjin and Shanghai (three biggest cities in China) hold liaison meetings every year, and cooperative teaching projects are being prepared jointly by PTVUs located along China's southeast coast where the economy is developing more rapidly.

TABLE 1 : The Five Levels of China TVUs


The State Education Commission
CRTVU
Provincial Education Commission
PTVU
Prefectural/ civic Education Bureau
Branch School
District/or County Education Bureau
Work Station
System Work Station
TV Classes
NOTE: Indicates Leading Administratively
Indicates Guiding Academically

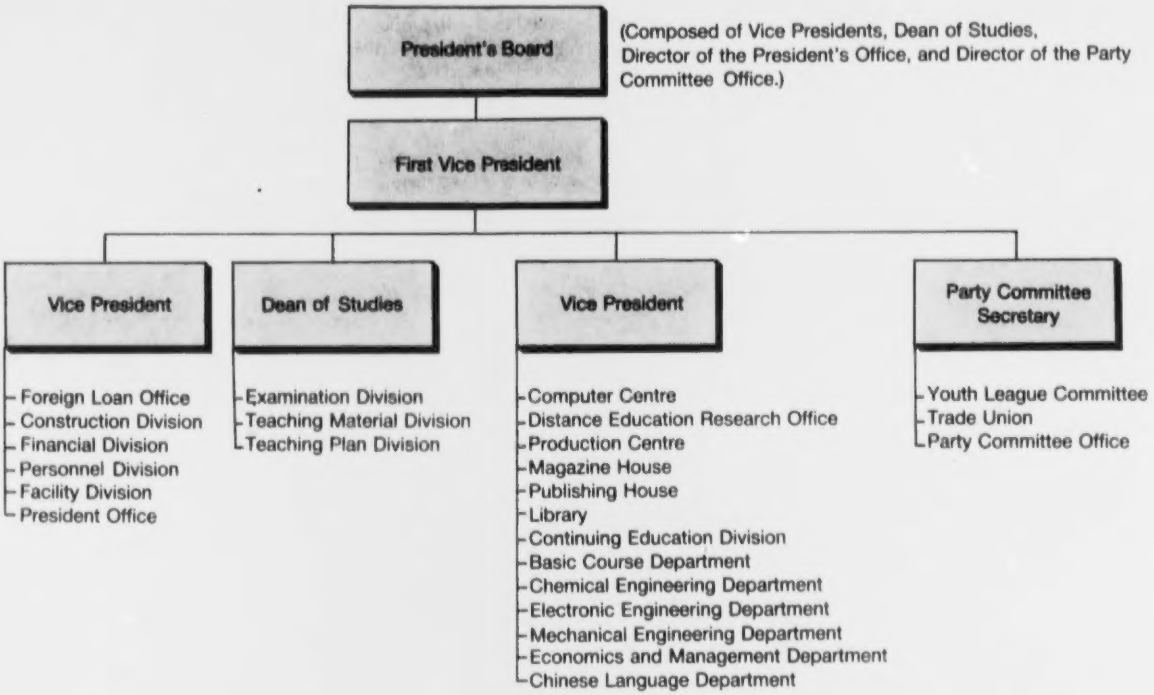
4.2.1 The Central Radio and TV University

The CRTVU is one of 37 key national universities under the direct leadership of the State Education Commission (SEDC). There are six departments and three teaching administrative divisions in the CRTVU. The six departments are Basic Course Department, Economics and Management Department, Chemical Engineering Department, Electronic Engineering Department, Chinese Language Department and Mechanical Engineering Department. The three administrative divisions are Teaching Plan Division, Teaching Material Division and Examination Division.

The responsibilities for the CRTVU are to offer nationally established specialities and to map out teaching plans and teaching syllabuses; to organize the teaching materials' writing, publishing and distributing, and the TV/radio programmes production for national established courses; to prepare the national established course end-of-term examination papers and arrange the nation-wide examination schedule; to train teachers, technicians and administrative staff; to do research on distance higher education; to guide the teaching and administrative work done in provincial TVUs.

Table 2 shows the organizational structure of the CRTVU. The PTVUs have the same departments as the CRTVU, so that both administrative and academic work can be done systematically. The responsibilities of the key departments in the CRTVU are given below:

TABLE 2 : The Organizational Structure of the CRTVU



President's Board (Composed of Vice Presidents, Dean of Studies, Director of the President's Office, and Director of the Party Committee Office.)

First Vice President

Vice President
- Foreign Loan Office
- Construction Division
- Financial Division
- Personnel Division
- Facility Division
- President Office

Dean of Studies
- Examination Division
- Teaching Material Division
- Teaching Plan Division

Vice President
- Computer Centre
- Distance Education Research Office
- Production Centre
- Magazine House
- Publishing House
- Library
- Continuing Education Division
- Basic Course Department
- Chemical Engineering Department
- Electronic Engineering Department
- Mechanical Engineering Department
- Economics and Management Department
- Chinese Language Department

Party Committee Secretary
- Youth League Committee
- Trade Union
- Party Committee Office

The President Office -- in charge of administrative routine work such as coordinating work shared by various departments of the university; bridging the relationships between the State Education Commission and the Local TVUs, and organizing important conferences of the TVU system

There are three divisions in charge of teaching administration of the whole system. The main responsibilities shared by the three divisions are shown in the following table:

Division	Responsibilities
Teaching Plan	needs analysis; curriculum design; timetable for course delivery; receiving visitors asking about curriculum; answering letters concerning teaching plan.
Teaching Material	making plans for compiling and producing printed and audiovisual teaching materials; coordinating publishing houses, production centres and academics; evaluation teaching materials.
Examination	organizing the writing of examination papers; arranging the printing and distributing of examination papers; setting standards for marking examination papers.

4.2.2 The provincial TV Universities

The responsibilities for TVUs of Provinces, autonomous regions and municipalities are to draw up the provincial, autonomous regional and municipal established specialities and to make teaching plans and organize the teaching process; to map out local established course syllabuses, to write teaching materials and supplementary materials and to produce TV and radio programmes; to organize the examination offered by the CRTVU and to mark the paper, to prepare the provincial established course end-of-term examination papers; to set the rules and regulations of teaching administration and examinations, to keep student records and to award certificates and graduation diplomas; to guide the teaching and administrative work done in branch schools and in work stations.

4.2.3 The Branch Schools

Their responsibilities are to organize teaching activities, such as watching TV teaching programmes, having tutorials, conducting examinations and tests, doing laboratory work and field studies etc; to carry out rules and regulations of teaching administration; to set up work stations and TV classes and to guide their work.

4.2.4 Work Stations

They are responsible for organizing TV classes and guiding their work, allocating tutors to TV classes and passing on teaching information to them.

4.2.5 TV Classes

All the registered students are organized into TV classes, each of which has about 40 students. They watch TV teaching programmes, listen to radio teaching programmes, and have tutorials together in a classroom. One of their full-time tutors serves as the class manager who takes care of the students in all their study activities. His or her responsibilities are to administer teaching and learning classes; to make time tables for every semester; to organize viewing and listening of teaching programmes, tutoring, laboratory work and field studies; to encourage students to take part in physical training and recreational activities outside class; and to keep contact with work units from which the students come.

4.3 The Relationship between the CRTVU and other Institutions Concerned

4.3.1 The Bureau of Education through Electronic Media

In 1986, the Bureau of Education through Electronic Media was established in the State Education Commission. This new bureau gives leadership to institutions running education through electronic media, including the CRTVU, the CTVNC (China's TV Normal College), the CAVEC (Central Audio-visual Education Centre) and the CETV (China's Education TV).

4.3.2 The CETV

The CETV was set up in 1986. It uses satellite to broadcast educational programmes provided by the CRTVU, the CTVNC and the CAVEC etc. More than half of the CRTVU's college level programmes and all its continuing education programmes are broadcast by the CETV via its two channels.

4.3.3 The Central China Television (CCTV)

CCTV is the only national TV station under the leadership of the Ministry of Broadcasting and Films. Since the CRTVU used to be under the joint leadership of the former Ministry of Education (now the SEDC) and the Ministry of Broadcasting (now the Ministry of Broadcasting and Films), CCTV was responsible for CRTVU's teaching programme production and transmission through its national microwave network covering 73% of the country's total area.

In recent years more and more TV programmes have been produced by the TVU system's own production centres set up by using the World Bank loan. But CCTV still transmits about one third of CRTVU's teaching programmes.

4.4 Courses and Specialities

In the past nine years of its existence, the CRTVU has offered 150 courses in the subject areas of mathematics, physics, chemistry, biology, mechanical engineering, electronic engineering, chemical engineering, civil engineering, economics, accounting, statistics, finance, banking, industrial management, commercial management, archives management, journalism, law, library science and the Chinese language and literature etc. In addition to courses offered by the CRTVU, PTVUs and their branch schools offer their own courses following an overall pre-established teaching plan to coordinate their outputs at the three levels. Work stations and TV classes may organize special courses to suit the needs of work units. The Shanghai TV University once offered courses specializing in medicine, and the Heilongjiang Provincial TV University had their own courses offered to train personnel needed in agriculture. In 1986, eight provincial TV universities offered courses specializing in the English language to train secondary school English teachers and other English language workers needed in tourism and foreign trade. In 1987, the total number of courses offered by TVUs at different levels amounted to more than 400 constituting 81 specialities.

TABLE 3 : Courses

1. Courses for Degree Learners:

Degree Level	Subject Areas	Specialities	Time of First Offering
College Diploma	Engineering	Mechanical	1979
		Electronic	1979
		Chemical	1982
		Civil	1984
		Applied Computer	1986
	Humanity	Chinese Language and Literature	1982
		Law	1985
		Journalism	1985
		Library Science	1985
		Basic Training for Cadres	1984
	Economics	Accounting	1983
		Statistics	1983
		Banking	1983
		Finance	1983
	Agriculture	Planting	1988
		Agricultural Teacher Training	1988
Secondary Vocational Certificate	Engineering	Civil	1986

Total courses offered by the CRTVU is 150.

2. Courses for Non-degree Learners:

Subject Areas	Specialities	Time of First Offering	Cooperator with the CRTVU
In-service Training	Accounting	1987	
	Audit	1988	
	Banking	1988	
	Library Science	1988	
	Continuing Education Programme for Modern Engineers	1986	Beijing Economic Commission
	New Techniques in Electronic Field	1986	
	Restructuring Finance System	1987	Ministry of Finance
	Principles and Practices of China's Foreign Economic Relations	1988	Ministry of Foreign Economic Relations
	Continuing Education Programme for Chemistry Engineers	1988	
	Basic Method of Audit	1988	State Audit Bureau
	Banking Market	1987	China Bank
	Public Transportation	1988	
	Linguistics	1988	
	Functional Words Analysis to Scientific English	1986	China Electronic Society

Total courses offered by the CRTVU is 80.

According to the principle of "unity of planning, share of offering courses", all courses offered respectively by the CRTVU and local TVUs should follow the general teaching plan approved by the State Education Commission, and the ratio is 6 : 4. The course presented to registered students are all at undergraduate level, which has been the major task for TVU in the past nine years.

In July 1986, through the satellite educational channel, courses for continuing education began to be offered to the general audiences. Among those successful programmes were courses for "Modern Engineers" and "English Functional Words Analysis" which was a short course of how to read English. These two courses are warmly welcomed by engineers and technicians. The estimated figure of viewers is about 300,000. Starting from 1987, secondary vocational education courses and in-service training courses have been available. Single-subject certificates and professional diplomas will be awarded to the learners who have passed the examinations required. To get a professional diploma, one has to finish about ten subjects.

4.5 Target Students

4.5.1 Target Students

The TV university's target students are inservice adults, fresh secondary school graduates and young school leavers waiting to be assigned jobs. The in-service adults aged about 30 are enrolled according to plans for training drawn up by their respective work units, after which admission is granted to those who pass the national entrance examination held by the State Education Commission for adult higher education. Fresh secondary school graduates are admitted by national entrance examination for conventional universities and colleges. In this respect, TVUs are regarded as a new type of "conventional" university. Young people waiting for jobs must pass the entrance examination for adults before admission. This category of student has kept increasing since TVUs were open to them.

The above-mentioned three types of students are called registered students who enjoy a formal status as students of the TV university. These students are all organized into TV classes and taken care of by a class manager and several tutors. There are still other students who do not take the entrance examination and who study on a self-instructional basis. They are called "free viewers and listeners". This category of student increased so rapidly that it was hard for the TVU system to cater for. In 1985, the State Education Commission decided to stop receiving free viewers and listeners for a period of time, during which those who had begun learning were registered and organized into study groups. The remaining free viewers and listeners from 1979 to 1985 are allowed to be issued diplomas or single-subject certificates if they take and pass the final examinations.

In-service adult students can study full-time or part-time depending on the amount of time they are given by the work units from which they come. Fresh secondary school graduates all study full-time, whereas young school leavers can choose their modes of study according to different speciality teaching plans. Part-time students must finish their courses required for a degree in three to six years, and spare time students are allowed to accumulate credits for a maximum period of ten years.

4.5.2 Degree and Non-degree Learners

4.5.2.1 Degree Course Learners

a. All-Subject Students, after two or three years full-time study, can be awarded college level diplomas. They have to finish all the subjects required according to a particular speciality teaching plan.

   All-Subject students are in-service adults and other people like fresh secondary school graduates and young school leavers.

   These All-Subject students are all organized into TV classes, learning full time, so they are also called "Full-time Students"

b. Single-Subject Students choose only one subject, learning part-time and they can be awarded single subject certificates. They are also called "Part-time Students".

   They are also organized into TV classes to meet tutors. For example, the English Language single subject students watch TV programme 3 times a week themselves, and have tutorials once a week in a classroom. After two years study, they can get certificates.

c. Free Viewers and Listeners do not take the entrance examination, and they are not organized into classes. But they are allowed to take part in end-of-term examinations. If they pass the examination, they can obtain credits. Free viewers and listeners can get certificates or diplomas according to how many credits they have accumulated. These students represent a very small proportion of the total population of TVU students from 1986 to 1988.

4.5.2.2 Non-Degree Course Learners

a. Continuing Education Course Students have already received higher education; they study for the sake of improving themselves.

   Most of them are organized to study by their work units and they are part-time learners.

b. In-service Training Students are experienced workers who have lost the chance to receive higher education. The programmes are so designed that they can be trained to be qualified for their working posts.

   They learn full-time or part-time depending on the amount of time given by their work units.

TABLE 4: Students of China TVU

	Annual Enrolments			All Registered Students			Graduates		
	All-Subject	Single-Subject	Total	All-Subject	Single-Subject	Total	All-Subject	Single-Subject	Total
1979	97,746	224,725	322,741	97,502	182,656	280,158	---	---	---
1980	79,377	80,124	159,501	167,962	156,410	324,372	---	92,714	92,714
1981	---	---	---	170,391	97,635	268,026	---	47,590	47,590
1982	184,973	68,083	253,056	258,488	88,679	347,167	92,022	94,566	186,588
1983	235,567	18,728	254,295	414,054	64,704	478,758	67,905	61,286	129,191
1984	205,858	11,992	217,850	599,086	62,249	661,317	17,032	105,185	122,217
1985	273,112	11,446	284,558	673,634	19,986	693,620	165,204	75,386	240,590
1986	215,200	21,861	237,061	604,437	38,978	643,415	248,778	142,015	390,793
1987	130,026	65,500	195,529	565,948	84,111	650,059	178,891	11,310	190,201
Total	1,421,862	502,459	1,924,321	---	---	---	769,832	630,052	1,399,884

NOTE: Non-degree students are not included.

TABLE 5: Year of Enrolment According to Subject Areas

Subject Area	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Mechanical Engineering	★	★		★		★		★	★		★
Electronic Engineering	★	★		★		★		★	★		★
Civil Engineering						★		★		★	★
Chemical Engineering						★		★			★
Business Management					★			★	★	★	★
Accounting					★			★	★	★	★
Finance					★			★		★	★
Statistics					★						★
Banking					★			★		★	★
Chinese Language				★			★			★	★
Library Science							★			★	
Law							★			★	★
Journalism							★				
Basic Training for Cadres						★	★				
Planting										★	
Agricultural Teacher Training										★	
Mathematics	★										
Physics	★	★									
Chemistry	★	★		★							

5. Course Development and Teaching Process

5.1 Course Design

As mentioned above, the CRTVU has offered about 150 courses in 19 subject areas (see 4.3) to meet the needs from the society. The CETVU offers major courses such as mathematics, English, physics etc., and PTVUs offer minor ones to meet local needs.

Following the teaching plan and course syllabuses approved by the State Education Commission, courses are prepared by course teams composed of TVU teachers, studio people and academics from conventional universities. Course teams are in charge of course design under the guidance of a advisory panel which gives instructions on proper media to be used and competent people to be involved. The panel is usually composed of five to seven people selected from best teachers of conventional universities, the CRTVU and PTVUs.

5.2 Print Material Writing

Writers of TVU print teaching materials are selected from the CRTVU, PTVUs and conventional universities. The chief writer must be a nationwide famous one, and the one from the CRTVU works as the coordinator between the chief writer and others. Coursebooks are written by the chief writer with the help of others. Reference books and study guides are written by writers from the CRTVU and PTVUs, under the guidance of the chief writer. Before publication, the three books must be approved by senior academics invited from key universities.

5.3 Use of Media

The TV university courses are multimedia, consisting of radio, television and print materials. The proportion of TV programmes for science and engineering courses is greater than that of other media, whereas radio is used as the main medium for social science courses. Since the satellite transmission for TVU programmes began in 1986, TV programmes of social science courses have increased greatly. Audio cassettes and video tapes are also in use for some courses to make up insufficient transmission time and to provide more convenient access for distance learners. Over a million copies of audio-visual teaching materials are produced and duplicated each year.

Print teaching materials are available to supplement radio/TV programmes for all courses. These materials are divided into three types: coursebooks, reference books and study guides. Most of the coursebooks, introduced or compiled by the CRTVU, are more or less the same as those textbooks used in conventional colleges and universities. Reference books and study guides are compiled by radio/TV presenters with the help of TVU teachers at CRTVU and PTVUs. Reference books include supplementary teaching materials extended from the coursebooks, and tell the students how to study what, when and where to met their tutors and how to prepare their examinations. The study guides also help the students to solve important and difficult problems of the course. During the past nine years, more than 400 print books totaling 40,000,000 copies have been published by the CRTVU Publishing House. These books can be bought in the shops of national book retailers, the New China Bookstores (Xinhua Shu Dian).

At present, radio and TV teaching programmes are, to a large extent direct transcription of conventional university classroom teaching. Presenters are chosen from key universities all over China. In its initial stage, it is necessary for TVUs to adopt textbooks used in conventional universities and to choose academics with a good university teaching background as presenters so that a high standard of tuition can be guaranteed. These two measures have proved to be effective. However, this teaching pattern is bound to be changed. The concept of multimedia teaching packages has been introduced to China's TVU teachers. The package is composed of integrated radio/TV programmes, coursebooks and study guides. Distance teaching print materials suitable for radio and television presentation are being prepared. More imaginative use of radio and television is being researched on, and new types of programme have been produced on a trial basis. This implies a change in the role for radio and television. A pre-requisite for the change lies in the need to increase the teaching function of print. It takes time for the TVU system to replace its existing courses with new type multimedia ones.

5.4 TV and Radio Programme Production

Radio and TV teaching programmes had been produced by the Central People's Radio Station and the Central China Television before 1983, and from which year on more and more audio-visual teaching programmes have been produced by the CRTVU and PTVUs. There are more than 40 production centers within the TVU system. Among them the production center of the CRTVU is the largest and best equipped as a World Bank loan project. Another nine PTVU production centers in principal cities are better equipped than the rest. The TVU system plans to produce all its radio and television programmes in their own production centers within a few years.

5.5 Broadcasting

Only the CRTVU's TV programmes are transmitted nationwide. Besides the CRTVU's TV programmes, PTVUs have their own radio and TV programmes broadcast for regional use and audio cassettes and video tapes are distributed to the branch schools, work stations and TV classes for the convenient use of the students. The use of media is shown in Table 6.

TABLE 6: The Use of Media

Organization Which Puts out the Programmes	Type of Transmission Media Used	Area Broadcast to	Time Available
CCTV (Courses Offered by the CRTVU)	Microwave	Nationwide	33 H/Week 1,320 H/Year (8:30–11:30) 13:30–16:10)
CETV (Courses Offered by the CRTVU)	Satellite (since 1986)	Nationwide	49 H/Week 2,340 H/Year (16:50–23:00)
Provincial and Civil Radio/TV Stations (Courses Offered by the CRTVU and PTVUs)	Radio and Television	Regionally	Varies Locally
Branch Schools, work Stations and TV Classes	Audio-Visual Equipment, Audio Cassettes and Video Tapes		

NOTE:
1. One teaching hour lasts 50 minutes for a radio/TV programme.
2. In Beijing, the Beijing Radio Station transmits radio programmes through 1026 KHz (7:30–12:00) and 927 KHz (16:20–21:40), 31.5 H/Week and 1,500 H/Year.

5.6 Laboratory Work and Field Studies

For science and engineering courses, practical laboratory work is emphasized to put theory into practice. Practical laboratory work used to be done in conventional universities or research institutes during public and school holidays or at other times when the laboratories are not in use. Along with the setting up of TV university's own laboratories, more and more laboratory work has been done in TV university's study centers where there is a laboratory, an audio-visual lab and a small library. As a World Bank project, 85 study centers of this kind have been built up. In order to enable students in remote areas to do experimental work, physics, chemistry, mechanics and electronics experiment kits have been designed, and some of them have been put to use in large numbers.

For laboratory-based courses, students cannot obtain their credits until they have completed the required practical experiments to their tutors' satisfaction. There is some flexibility in the number of experiments which students are required to carry out, as conditions vary from place to place. Students having access to better equipped laboratories may perform more experiments than those who do not have a well equipped laboratory at their disposal. However, they must complete the required minimum of experiments, as without this they cannot graduate or be awarded diplomas.

Engineering majors have to go to factories to gain practical experiences during their vacations, and they complete a project before graduation. Social science majors have to conduct field studies, and prepare a report of their findings. Through the above activities, students are expected to cultivate their ability to study by themselves and work independently.

5.7 Tutorials and Assignments

Although radio and TV programmes are supplemented with print teaching materials, face-to-face tuition is also available to students. Tutoring is necessary because of two reasons: (a) Presenters of radio and TV programmes cannot answer students' questions directly and no immediate feedback for the presenters to adjust his/her teaching. (b) Registered students are organized into TV classes, listening to and watching programmes together. Television image and radio sound may be unclear because of technical or other reasons.

Tutors work full-time or part-time. In 1986 the number of full-time tutors was 11,229; and part-time tutors 14,795, who are teachers, researchers and technicians invited from conventional universities, research institutes and large enterprises. Besides tuition, tutors are also responsible for correcting students' homework and directing their self-study. In some TV classes, tutors teach courses organized by their branch schools or by their work units to meet local needs.

There are assignments in all degree courses, the mark of which is one of the important references for the students to get a certificate.

5.8 Examinations

The students' progress is assessed through examinations at the end of each term. For courses offered by the CRTVU, both unified exam papers and the system used for marking are designed by the CRTVU. Such exams are held on the same date through the country. Provincial TV universities are in charge of the organization of the examinations, and of marking the papers afterwards. The standards and conduct of the exams are very strictly safeguarded.

Students who do not pass their exams can continue their study along with the following year's intake, until such time as they pass the exam and obtain the required credits. But full-time students who were previously working (before being released to become TV university students) come under a different system. If they fail two end-of-term exams in any one term, or three examinations in different terms, they must go back to their original work units. This category of student may go on to become a single-course "sparetime" student if this is approved by the leadership of his/her work units.

Students who are successful in the examinations obtain credits. They are then awarded certificates or diplomas according to the credits they have accumulated. The degrees are equal to those awarded by conventional two or three year colleges.

5.9 Credit System

In the radio and television universities, the credit system is in use. One credit requires 18×fifty-minutes of teaching and learning. Teaching includes watching audiovisual teaching programmes and having face-to-face tuition. Learning includes doing homework, experiments and other practical activities. Self-study by reading printed materials is also included in teaching and learning. For a two year graduation diploma, one has to obtain 160–180 credits; and for a three year one, 240–270 credits are required. Students are allowed to accumulate their credits within ten years though they are encouraged to finish their study in less than five years. Over five years, the teaching plan might be changed and the teaching materials might be different. The calculation of a particular student's credits might become rather complicated over too long a period of time.

5.10 Feedback and Evaluation

Feedback from TV students to the writer of print teaching materials, the presenter of radio/TV teaching programmes, and the administrative people at various levels is through several channels:

a. Academic Meetings: each year there are tens of academic meetings held nationwide or within a region. National meetings are held by the CRTVU to discuss teaching plans and course syllabuses. Regional meetings are held to solve common problems raised by students. Participants of these meetings report feedback from the students and exchange their teaching and administering experiences. Participants of national meetings come from the CRTVU and PTVUs. They are academics in charge of courses offered through CCTV or CETV. And participants of regional meetings are local teachers from PTVU's branch schools and work stations. They are face-to-face tutors or class managers.

b. Examination Papers: exam papers are the best feedback carriers with a variety of information. This information is used as data for evaluating TVU courses and students study.

c. Letters: students and TV class tutors write letters to course team members and responsible administrators of TVUs at all levels. These letters are treated as important feedback.

d. Others: academics and administrators from the CRTVU or PTVUs go to branch schools, work stations and TV classes to do investigations. They write reports after their study tours. Students and tutors go to the CRTVU and PTVUs to complain about their problems or make suggestions to improve teaching and learning.

6. Cost

The TVU system's budget comes from a variety of resources. The CRTVU is funded by the State Education Commission with the CCTV and CETV being responsible for television transmission cost. It also gets financial support from ministries which ask the CRTVU to help train their personnel.

PTVUs are under the auspices of provincial governments, and their branch schools under prefectural or civic governments. Funds for TV universities are part of the educational budget of governments at various levels. The amount of budget varies from place to place because of the unbalanced economic development in different parts of the country.

District/county work stations are funded by educational bureaus of local governments, and system work stations are financially supported by their respective system (i.e. railways, post and telecommunications, industrial and commercial concerns etc.). Various kinds of work stations have different budgets because of varied conditions.

TV classes run by work units get financial support from factories, shops, government bureaus which send students to be trained at TVUs, and TV classes run by TV universities at various levels to cater for secondary school graduates are aided by governments at corresponding levels. Each student has half of the amount of money provided by the government for a conventional university student. The other kind of TV classes composed of young school leavers can be financially supported by certain work units which will employ graduates from these classes.

In general, TV university students are free from tuition fees except free viewers and listeners who have to pay for registration and examinations. However, all students must pay for their own study expenses, such as print teaching materials etc.

6.1 Input Items

As China's TVU system is a very big and complicated one, the case study has only been carried out in Lioaning PTVU, one of its 43 Provincial TVUs. To a certain extent, it can be regarded as sample of the whole system.

a. Funds from Government:
From 1979 to 1986, the total funds from the local government was 38,940,000 yuan, the annual income being 4,867,000 yuan. More funds are provided in 1985 and 1986 for the construction of the production center and 6 study centers.

Year	Registered Students	Funds
1979	8,991	2,190,000
1980	18,571	2,760,000
1981	15,560	3,400,000
1982	22,019	4,340,000
1983	32,735	5,200,000
1984	41,954	5,740,000
1985	41,250	7,320,000
1986	33,525	7,990,000
	Total:	38,940,000

(Note: In 1981, TVU did not enroll students.)

b. Costs for TV Programme Transmission:
Total: 9,500,000 yuan.

The costs are only for the provincial TV station. The average transmission fee is about 900 yuan per hour, as there are 33 hours per week, it is 1,320 hours per year, totaling 10,560 hours during 8 years.

The cost for TV programme transmission rises astonishingly after 1986, so the dead line is drawn to 1986.

c. TV Class Funds

The funds for TV classes come from students' fees. The standard of students' fees is set by the local educational department. The principle for setting the students' fees is to get balance between income and expenditure at the TV class. The total for students' fees is 41,910,000 yuan (only from registered students), of which the employers payment for the employees is 40,670,000 yuan (97%). The students' personal payment is only 1,240,000 yuan (3%).

Year	Employers Paid		Students Paid		Total
1979	2,620,000	97.03%	80,000	2.97%	2,700,000
1980	3,940,000	97.04%	120,000	2.96%	4,060,000
1981	3,460,000	97.10%	100,000	2.90%	3,560,000
1982	4,570,000	97.02%	140,000	2.98%	4,710,000
1983	6,710,000	97.10%	200,000	2.90%	6,910,000
1984	8,320,000	97.20%	240,000	2.80%	8,560,000
1985	5,580,000	96.70%	190,000	3.30%	5,770,000
1986	5,470,000	96.98%	170,000	3.02%	5,640,000
	40,670,000	97.04%	1,240,000	2.96%	41,910,000

d. Fees Paid by Free-Viewers:

Year	Free-Viewer	Course Selected
1979	6,393	Single-course
1980	2,450	Single-course
1981	0	
1982	3,196	All-courses
1983	9,691	All-courses
1984	2,473	All-courses
1985	12,055	All-courses
1986	0	

It is very difficult to make the fees paid by free-viewers clear, because this category of student is not stable. Here, free-viewers are divided into three types, and their payment is calculated as follows.

(a) Graduated		5,380,000 yuan
(b) Registered		4,910,000 yuan
(c) Drop-out		1,890,000 yuan
	Total :	12,180,000 yuan

Free-viewers are also divided into self-paid and employer-paid; the former make up to 20%, their payment totals 2,436,000 yuan and the latter 80%, 9,744,000 yuan.

e. Funds for Construction:
The total construction funds are 29,740,000 yuan for 85,600 square meters.

f. Salary of In-service Students:

In the past years, most of the TV students were in-service students. They had been approved by their employers to study in the TVU, so the employers paid them salary during their study period. The number of full-time in-service students was 30,807, making up to 57% of the number of graduates totaling 53,774, among which three-year full-time graduates were 28,977, two-year full-time graduates were 1,830. According to the salary standard from 1979 to 1985, the average salary for each student was 55 yuan/month. That means each graduate got 660 yuan/year, a two-year full-time graduate got 1,320 during his/her study period and a three-year full-time graduate got 1,980.

Salary for part-time students or graduates was not counted.

g. Funds for the CRTVU:

As China's TVU system is structured like a big pyramid, courses produced by the CRTVU and transmitted by the CCTV and CETV are for the local TVUs to teach students, so the local TVU graduates should share the cost of the CRTVU, CCTV and CETV.

The average share for each TVU graduate is 54 yuan.

6.2 Average Cost for Each TVU Graduate:

a. The total funds used by Liaoning TVU in eight years is 132,270,000 yuan.

Funds for undergraduate students is 14,210,000 yuan, which should not be counted for graduate cost.

29,740,000 yuan for construction can not be borne solely by these graduates. They only have to share three years construction depreciation charge of 2,980,000 yuan. The calculation is:

$$\begin{array}{r} 132{,}270{,}000 \\ \hline - \ 14{,}210{,}000 \\ - \ 29{,}740{,}000 \\ + \ \ 2{,}980{,}000 \\ \hline 91{,}300{,}000 \end{array}$$

91,300,000 yuan divided by 53,774 graduates is 1,678 yuan.

b. Cost of the CRTVU, CCTV and CETV shared by each graduate is 54 yuan.

c. Salary for the full time graduate is 1,112 yuan.

The total cost for a TVU graduate in Liaoning TVU is 2,844.

6.3 Comparing with Conventional University

(See Table 7 next page)

7. Outcomes

The analysis done in the Liaoning TV University has proved that an average one third of the cost can be saved to produce a TVU graduate who studies full-time and continues to receive full salary, two thirds can be saved to turn out a spare-time graduate.

The development and cost effectiveness of radio and television university system have been positively acknowledged by the government leaders. At the graduation ceremony held by the CRTVU for the first group of graduates on 29 June 1982, the Chinese minister of education pointe out; "Experience has proved that, in a country like China, with a vast territory, a large population and comparatively backward cultural, scientific and technological development, it is feasible to use the media of radio and television in distance education so as to train more people in a shorter period of time and on a large scale. It is also a good method of improving the general cultural and scientific level of the whole nation with less manpower and fewer materials resources." On the same occasion, the minister of broadcasting said: "The radio and television university has opened a new channel of developing another means of higher education and is a method of running universities, which is welcomed by the masses. It can train more people who can be used for the modernization project of the country in a faster and more economical way."

TABLE 7: Comparing with Conventional University

	Number	Registered Students (Early 1986)	Funds (1985)	Staff	Ratio Between Staff and Students	Graduates (1981 – 1986)	Average Cost for One Student/Year	Average Cost for One Graduate
Universities Run by Ministries	24	57,730	138,420,000	35,065	1 : 1.6	62,720 30%	2,656 Yuan	
Universities Run by Liaoning Government	15	26,987	60,950,000	11,462	1 : 2.4	30,341 14%	2,581 Yuan	10,536 (4 Years)
Universities Run by Civic Government	25	22,711	27,070,000	5,877	1 : 3.9	11,091 5%	1,643 Yuan	4,929 (3 Years)
Non-Conventional Universities	162	82,132		11,968	1 : 7.5			
TVUs	17	53,208	7,340,000	2,148	1 : 25	53,774 26%	577 Yuan	1,732 (3 Years)
TOTAL	243	242,774	1,460,000,000	61,500		210,884		

7.1 Students:

China's radio and television university system has made great achievements in less than ten years. Courses offered at all levels have been increasing year by year. Enrolled all-subject students have totalled over one million, and all-subject graduates have amounted to more than half a million. A little less than half a million enrollment of single-course students has been achieved, and more than half a million single-course graduates have been turned out. The number of TVU undergraduates has helped to increase the ratio of China's higher education institutes students from 0.7% in 1975 to 4% in 1987 of adults aged over 25. A large number of TVU graduates have become technicians and engineers who are badly needed in the domains of industry, transportation and others. Thousands of all-courses and single-course graduates have been assigned to be teachers who have been most welcomed as qualified ones in secondary schools. In 1986, the number of graduates majoring in economics and management amounted to more than 200 thousand which is 1.2 times of all those graduated from conventional colleges and universities over the past 37 years after the founding of the People's Republic.

The ratio between the first intake and the first graduate is 100 : 69, the dropout ratio is 31%, which has varied from 25% to 35% over the years since then. It has been generally acknowledged by part-time tutors from conventional universities that the level of TVU graduates is about the same as that of conventional college graduates. In-service TVU graduates have made valuable contributions after they returned to their original work units. The other two types of graduates have been welcomed and praised by people from all walks of life.

Here are some more figures from Liaoning TVU : during the eight years from 1979 to 1986, 120,314 students were enrolled, including 108,923 in-service students and 11,391 secondary school graduates. The average enrollment was 17,173 per year which doubled the higher education learner's figure.

7.2 Achievements:

7.2.1 Providing Chances for Higher Education:

During the ten years of "Cultural Revolution", a whole generation lost the chance of receiving higher education, which became a social problem. The on-going four modernization projects need thousands upon thousands qualified personnel. Even if the state had had funds, it would not have been able to set up hundreds of universities and colleges to meet the needs. The TVU was just operated in time. And it is its long-term task to train large numbers of qualified people needed by the economical reform and social development.

7.2.2 Offering Courses of Social Needs:
The major courses offered by the CRTVU are concerned with specialities according to the social needs. Along with the development of economical reform, courses linked up with economics, management, law and English have been warmly welcomed. Take the English course as an example, the print materials have sold more than a million copies, which shows that the course offered has well met the social needs.

7.2.3 Opening Doors to the Countryside:
Over a long-period of time, universities and colleges were only available in cities. The further from cities and towns, the more undeveloped education is. Distance education has changed the situation to a large extent. There are 2,300 counties in China, of which nearly 2,000 have set up TV work stations. The doors of higher education have thus been opened to the countryside.

8. Limitations and Improvements to be Made

The TVU system has made remarkable strides in the past nine years of its operation. Nevertheless, there are certain educational and administrative problems to be overcome, such as the limited transmission time for television, improper use of media, inconvenient viewing and listening for spare-time study, delayed distribution of print teaching materials, over loaded study burden of students, insufficient provision of experimental work, shortage of qualified staff for doing research on distance education and so on. In April 1986, presidents of the CRTVU and PTVUs had a conference in Hangzhou, a city in east China, to sum up experiences of operating TV universities in China and to discuss the new situation confronting the TVU system. They came to the conclusion that China's TVU system had entered a new stage of development, and that the system had to be reformed in order to suit the needs of China's political and economic reform project. A year later, the presidents met again in Beijing to have further discussions on how to reform the TVU system. Some ideas concerning improvements to be made had been agreed at the conference.

8.1 Improving the Print Teaching Materials:

A committee in charge of overall planning of TVU teaching materials will be set up soon by the CRTVU. The committee will be composed of members from the CRTVU, the PTVUs and conventional universities. By 1990, about 60 new types of multimedia courses will be developed jointly by the CRTVU and PTVUs with the help of conventional universities, the teaching materials of which will be characteristic of distance teaching and convenient for self-instruction. In principle, print teaching materials will be the core of these new types of courses, and teaching hours of radio and television will be reduced.

Since nearly all of the print teaching materials were written by teachers of conventional universities and colleges, in the first few years of TVUs existence, these materials did not suit distance learning.

The new type of print teaching materials will be designed under the "three in one" principle, i.e.. coursebook, reference book and study guide should be supportive of each other, taking into consideration radio and TV presentation as supplementary media.

8.2 Improving the TV and Radio Teaching Programmes:

A guide has been made last year for producing audio-visual teaching materials. The guide will help teachers and studio people to produce more imaginative radio and TV teaching programmes so that the existing "talking head plus blackboard" type of teaching programmes will be greatly improved.

8.3 Staff Training:

The training of TVU system staff is an urgent task. Teachers, technicians and administrative staff members will be trained in different groups on a large scale. Some of the training will be operated by Chinese experts within the CRTVU and PTVUs, some will be conducted by foreign experts in China and some will take place abroad. The training center of the CRTVU is being set up and will soon be in use.

8.4 Research Work:

Research on distance education should be strengthened, as without which the TVU system cannot operate well. Research centers have been set up in the CRTVU and some PTVUs. A national association aimed at research on higher education by radio and television is being prepared. A tracer study based on random sampling of TVU graduates is being done throughout the TVU system. Three major research projects have begun on evaluation, cost analysis and fundamental theory of distance education. These projects are planned to be finished before 1990.

Conclusion

China's radio and television universities were initiated at the beginning of the 1960s, suspended for ten years and resumed at the end of the 1970s. China's TVU system was formed at the beginning of the 1980s, and it has entered a new stage of development in 1986. In the 1990s, one out of six university students will be enrolled in TVUs. The Chinese government has attached great importance to the development of radio and television universities. Zhao Ziyang, general secretary of the CPC, said in 1983: "Television universities are a valuable form of education. 92,000 students graduated last year. Those who passed the examinations were awarded diplomas. The level of graduate is satisfactory. The development of TV universities is suitable for China as it is an effective way of training more people at lower cost in a shorter period of time. ...It is very difficult for conventional universities to increase admission by tens of thousands within one year. But 92,000 students graduated from the television universities last year." With the progress of China's modernization process and the development of telecommunications and space exploration, the TVU system will have ample opportunity to expand. Looking ahead, China's radio and television universities will play an increasingly greater role in higher education as well as in the national economy and social development.

APPENDIX 1: The Enrollment, Graduates and Funds of the Heilongjiang PTVU

Year	Annual Enrollment	All-subject Graduates	Funds
1979	4,363		2,215,000
1980	10,246		2,318,000
1981	– – –		3,423,000
1982	17,041	1,506	3,544,000
1983	21,953	3,604	5,653,000
1984	14,535	11,919	5,996,000
1985	19,456	17,936	6,057,000
1986	6,182	12,560	5,596,000

NOTE:
1. In 1981, the TVU did not enroll students.
2. In 1986, all TVU students had to pass the nation-wide entrance examination which was set by the SEDC, and no free viewers and listeners were allowed to follow degree courses.
3. The funds do not include students' fees, students' salaries and funds from the CRTVU etc.

APPENDIX 2: The Enrollment, Graduates and Funds of the Shenyang PTVU

Year	Annual All-subject Enrollment	All-subject Graduates	Funds
1979	3,200		1,180,000
1980	3,907		1,670,000
1981	72		2,910,000
1982	5,457	2,689	2,650,000
1983	5,605	3,424	3,680,000
1984	3,224	72	4,210,000
1985	3,130	6,050	6,720,000
1986	2,824	4,784	5,670,000

(See notes in Appendix 1.)

The Indira Gandhi National Open University
–A Case Study

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Vice-Chancellor, IGNOU

1. The Context

Among others, one of the significant contributors to the making of India's national movement, and the subsequent political emancipation, has been the uniformly growing and relatively better organised liberal education during the past over one hundred and fifty years. However, the fruits of this political freedom remain inaccessible to the masses in the country even after four decades of commendable progress in all the areas of human endeavour – agriculture, industry, technology, sciences, etc. This progress has failed to become a phenomenon of the masses mainly because the efforts made are a mismatch for the needs of the ever growing population. An obvious way out of this dilemma is not only to diversify the thrust areas in the country's education, but also to extend its reach to remote pockets – be they geographical or social. Having sensed this need of the hour, the political leadership has set a challenging task for the contemporary educationists who are called upon to extend their explorations not only to hitherto untouched or tabooed educational paradigms, but also to innovative educational systems that can create entirely fresh, and also expand the existing educational facilities. In this context the major problems are: (i) shortage of funds, (ii) ever growing numbers to be brought under suitable educational programmes, and (iii) achieving this objective in the shortest possible time. It is to meet this challenge that India has embarked on Open Education in conjunction with Distance Education – the former not only to explore new areas of activity, but also to strengthen the already existing ones, and the latter to make education a truly democratic phenomenon – a phenomenon of the masses and for the masses. Then only, it is believed, will the riches of the country transform into the riches of the people.

Before we present a study of the major attempt made in the direction suggested above, we need to appreciate more clearly the geographical locale and the socio-educational relevance of such an attempt.

1.1 The National Profile:

1.1.1 Geography and People

India is situated at the south of the Asian landmass with its northern frontiers bounded by the Himalayas. It stretches southwards to form a peninsula projecting into the Indian Ocean. On the west of the peninsula is the Arabian Sea wherein lie the Indian islands called the Lakshadweep and on the east of the peninsula, in the Bay of Bengal, lie the Indian islands of Andaman and Nicobar. It has a land frontier of 15,200 km and coastline of over 7,500 km including the coastline of the islands as well. Stretching 3,214 km from north to south, or over twenty-nine degrees of latitude, and 2,933 km from east to west, or over twenty-nine degrees of longitude, India covers a land area of 3,287,263 sq km. It is the seventh largest country in the world.

On this 2.4% of earth's surface live about 15% of the world's people. India is the second most populous nation of the world. The census in India is taken every ten years. According to the last census (1981), the total population was 685.18 million. Between 1971 and 1981, there has been a growth of 25% in the population. It is estimated that population today is nearly 800 million. The sex ratio is 933 females to 1,000 males. People live in a variety of social, economic and geo-physical conditions. India is predominantly a rural country with 76.7% of the population living in rural areas. But at the same time, India's total urban population exceeds the total population of many developing countries. The literacy percentage is 36.23. The annual birth rate is estimated to be 32.5 per thousand and the death rate 11.2 per thousand as of 1985–86. Life expectancy at birth was 54 years in 1981. Infantile mortalility per thousand births is 114.

1.1.2 Government

India gained independence in 1947 after almost two hundred years of colonial rule and became a sovereign democratic republic in 1950. India is a union of 25 states and seven union territories. The states have been constituted by and large on the basis of their linguistic identities. (While there are as many as 1,652 languages and dialects spoken in India, the constitution recognizes fifteen major languages.)

India is a parliamentary democracy. The Indian constitution provides for a government which is federal in structure but has some unitary features. The constitution distributes legislative powers between the union legislature called the parliament, and the state legislatures. The union list includes defence, foreign affairs, railways, etc. Law and order, police, health and sanitation, etc. constitute the state list. The central and state governments are jointly concerned with subjects specified in the concurrent list like education, economic and social planning, vocational and technical training, newspapers, books and printing press, agriculture, etc. Education being in the concurrent list, the central government and the state governments are partners in the formulation of educational policies and their implementation. However,the central government has within its control a network of organisations through which it may directly implement its educational policies.

1.1.3 Economy

In spite of her creditable economic achievements since 1947, with a per capita gross national product of US $ 260, India remains the eleventh poorest country in the world. The estimated growth rate of real national income during 1985–86 was around 4%. India is predominantly an agricultural economy with over 70% of its working population engaged in agriculture. Agriculture contributes nearly 38% of India's national income as against a share of 21% on the part of the manufacturing sector. It also forms the basis of India's premier industries like cotton, textiles, jute and sugar. Agricultural products comprise about 22% of India's exports. Though only 12.6% of the working population is in the industrial sector, India ranks tenth among the industrial nations of the world.

India's is a mixed and planned economy. The public sector plays an active role in the basic and strategic industries, whereas in the other areas, private enterprise in encouraged. This is essentially to avoid the extreme of both the laissez faire free trade and the collectivism in the state capitalist system.

As far as planning is concerned, the Planning Commission is the apex body in the planning machinery of the country. It is charged with the responsibility of formulating the national plans and of keeping a close watch on growth trends in the various sectors of the economy. Planning is done for different time horizons. The long term perspective plan indicates the goals to be achieved over a period of 10 to 15 years with an appropriate time phasing of efforts and resources to be mobilised. Then there are the five-year plans which are designed to give concrete shape to the development efforts indicated in the perspective plan. Each five year plan consists of annual plans which provide an occasion for assessing the performance of the various sectors of economic activity from year to year and point out at the likely shortcomings in the various sectors which may demand more intensive efforts.

1.1.4 Communications and Mass Media Infrastructure

India has a fairly efficient communications infrastructure. Postal services cover every nook and corner of the country. There were in all 144,241 post offices in the country in March 1986; 15,682 in urban areas and 128,559 in rural areas. On an average each post office serves 5,206 persons and covers an area of 22.16 sq km. In addition, 69,611 villages in the country were being served through mobile counter facilities. More than 99% of villages had been provided daily mail delivery service by 1984. There were 37,424 telegraph offices in 1986, and 12,247 telephone exchanges with 3,486,000 working telephone connections in 1987.

By the end of the seventh five-year plan, India will have 203 broadcasting radio stations covering 97.5% of the total population and 91% of the total area. There are an estimated 50 million radio receivers in the country. India's is one of the biggest television networks in the world. Through its 238 transmitters and through transmission via satellite, television has been brought within the reach of an estimated 72% of India's population.

1.2 Educational Profile:

1.2.1 Educational Development

During the four decades since independence, considerable development has taken place in educational opportunities in the country. However, the goals envisaged in terms of overall coverage, equitable distribution and quality of education are still very distant. Since independence, the number of educational institutions in the country has increased from 230,000 to 748,000. Considerable increase in the enrolment of both sexes at all levels of education has taken place. During 1950–87, the total student population increased from 28 million to 140 million of which nearly 38% constitute girls. It is interesting to see that while the compound growth rate in girls' enrolment during 1950–83 has been 5.5%, that of boys was only 3.9% per annum. However, due to the enormous initial disparity in the enrolment of boys and girls, the absolute magnitude of enrolment of girls is still less than that of boys (Ministry of Education, 1985; Ministry of Human Resource Development, 1988).

Over the period 1950–87, the primary schools increased 2.6 fold (from 210,000 to 537,400). Strangely, the growth of primary schools has been slowing down lately. The enrolment has increased from 19 million to nearly 90 million during 1950–87 (NIEPA, 1988). The inter-census enrolment rate from 1951 to 1981 shows that for each decade, the growth rate for primary education was 6.2, 5.0 and 2.5%. The high growth rate during the fifties and then sixties may be due to the large stock of population responding to growing educational opportunities and also due to the fact that with each decade the base student population has been increasing and consequently for the same magnitude of additional enrolment the rate has to be smaller. If the over-age and under-age pupils are excluded while computing the rate of growth of enrolment for seventies, it comes below the age specific population growth rate. This shows that the backlog of illiterates in absolute terms keeps on increasing with time.

During 1950–51 to 1986–87, the number of middle schools increased from 13,400 to 137,200. The ratio of middle schools to primary schools increased from 1:6 to 1:4 during this period. Thus, during 1950–87, the elementary education institutions, primary and middle schools put together, increased from 223,000 to 674,600. The number of students at the middle stage has increased from 2.6 million in 1950–51 to 28.8 million in 1986–87. The average annual growth rate in enrolment was 5.5% during 1950–83; the growth in girls' enrolment, however, shows a higher rate of 8.6%. However, only 38.95% of girls in the relevant age specific population have been so far enrolled at this stage as against 66.50% of boys. It is relevant to note here that for 100 boys enrolled, only 67 girls are enrolled at primary level and 55 at middle level (Ministry of Human Resource Development, 1988).

From 1950–51 to 1982–83, the number of secondary and higher secondary institutions in the country showed an increase from 7,300 to 64,240. It is significant to note that the growth in the secondary/higher secondary institutions has been less than that of middle schools. At this stage the total enrolment increased form 1.22 million in 1950–51 to 15.5 million in 1986–87. During 1950–81, the average annual growth rate has been 7.8%. During this period, the girls enrolment registered a higher rate of growth (10.1%). In 1950–51, at this stage there were only 16 girls for 100 boys; by 1986–87, the ratio increased to 45 girls for 100 boys (Ministry of Human Resource Development, 1988).

With the adoption of 10+2 pattern (ten years of general education and two years of higher secondary with two alternative streams: a general and a vocational), vocational education started getting emphasis. By 1976–77, the programme got some importance only in three states. By 1983–84, it spread to eleven states. The growth rate of polytechnics has been only 6.8%; an increase from 325 in 1975–76 to 515 in 1982–83. Several states have registered significant growth in enrolment in polytechnics, technical and industrial, arts and crafts schools.

During the period 1950–83, there has been rapid growth in institutions of higher education. In 1951, there were 695 colleges and 22 universities (Ministry of Education, 1985a: V,3). In 1986–87, there were as many as 6,040 colleges, and 179 universities and equivalent institutions (AIU, 1989). Between 1951 and 1987, the number of students enrolled in institutions of higher learning increased from 174,000 to 5.65 million (Ministry of Education, 1985a: V,3; NIEPA, 1988). There was an average annual growth rate of 9.7% during the 1950–82 period (Ministry of Education, 1985:18). Despite this increase, the proportion of tertiary level students to the population in the relative age group 17–23 in only 4.8%, which does not compare very well with the corresponding figures of 25% in Philippines and 18% in South Korea. There are just over three graduates per thousand population in the country (Ministry of Education, 1985a: V,3–6). The decade-wise enrolment growth shows that while during the fifties and the sixties the growth rates were 12.4 and 13.4% per annum, during seventies it decreased considerably to 3.8%. This clearly shows that expansion at this level is slowing down.

Enrolment in engineering courses increased 4.2 fold, from 43,000 to 182,000 during 1960–87 (Ministry of Human Resource Development, 1988). It is significant that although enrolment of girls increased as much as seventeen times during 1960–83, its absolute magnitude continued to remain only 5% of the male enrolment (Ministry of Education, 1985:19).

As for the question of equity in the distribution of opportunities for higher education, the situation is unsatisfactory. For instance, for every six males having post-secondary educational attainments there is only one female having similar accomplishments. Similarly, of the total enrolment in institutions of higher learning, women account for only 28%. As for the rural-urban divide, there are 40 with post-secondary educational attainments among 1,000 urban population whereas there are only three among 1,000 rural population. Interregional disparities in higher education are also quite significant (Ministry of Education, 1985a: V, 3–7).

A perusal of the educational development during 1950–83 shows that there are substantial increases in the enrolment at all levels of education. However, it also reveals a few startling realities:

(i) The low school retention rates bring down the gains made by expanding facilities. From whatever figures available, it is evident that low retention and high drop-out rates continue to erode the gains from educational expansion.

(ii) As the educational development is finding difficulty in catching up with the population growth, the backlog of illiterates in absolute terms keeps on increasing with time.

(iii) The enrolment of girls at various levels shows impressive increase during the period 1950–83. However, their enrolment remains much lower than that of boys. The disparity still remains.

(iv) It seems that the educational facilities are mostly being taken advantage of by the middle and upper classes. The lower strata have yet to respond fully to the educational opportunities.

(v) There has been a slowing down of growth rate in enrolment at various levels of education during the seventies. This trend is significant. This seems to indicate that a point of saturation is imminent and further expansion needs structural changes in the educational system.

A logical conclusion from the above observations is that the formal educational system has not been able to cater to the educational needs of the masses. The solution to the problems of continuing inadequacy of educational facilities and inequity of educational opportunities lies not within the framework of conventional classroom-centred education system, but outside it.

1.2.2 Open University: Early Efforts

It was in this context that the educational planners in India started considering the option of distance education seriously. Directorates of correspondence courses had been established in several Indian universities following the recommendation in 1963 of an expert committee on correspondence courses and evening colleges appointed by the UGC with Prof. D. S. Kothari as its Chairman. However, these institutions remained a weak partner in the development of higher education in the country, since they suffer from several limitations.

The establishment of the Open University in the U.K. emboldened the policy makers in India to explore possibilities of making a similar venture. A committee with Mr. G. Parthasarathy as its Chairman appointed by the Government of India recommended in 1974 that a national open university be established by an act of Parliament "as early as possible". It is believed that a draft bill was prepared at that time in this connection for enactment by the Parliament. However, nothing further was heard about this, till as late as 1982, when the Committee to enquire into the working of central universities with Dr. Madhuri R. Shah as its Chairperson reopened this issue once again by reiterating the Parthasarathy Committee's recommendation of creating a national open university without delay.

While the idea of establishing a national open university was still taking shape, there were some developments in this direction in one of the provinces. In the state of Andhra Pradesh, the government considered a proposal to start an open university as early as 1978. Parallel to this, Osmania University, one of the leading universities in the state, put forth a proposal to start an open education college as one of its own organs to strengthen its distance education system. However, at about the time when the college was to be established, the state government intervened and initiated steps of establishing a full fledged open university instead. As a result, in August 1982, the Andhra Pradesh Open University was launched.

1.2.3 Establishment of the National Open University

At the national level, however, the earlier proposals remained on paper and no action was taken on the Parthasarathy Committee report and nothing was known about the draft bill prepared. The idea was again revived in 1983-84 and the proposal was pursued in the Ministry of Education. After the elections of December 1984, Mr. Rajiv Gandhi formed the government at the centre and announced his intention in January, 1985 in the form of a policy statement, to establish a national open university as one of his proposed new policies. The Ministry of Education under the leadership of Mr. K. C. Pant vigorously pursued the idea. Mr. Pant evinced keen interest in the concept and weathered the storms that he encountered. It was because of the Prime Minister's interest in the idea, the Education Minister's belief in the immense potential of the concept and the bureaucracy's total support to it, that the concept became a reality in a very short time. The Indira Gandhi National Open University (IGNOU) Bill was introduced in May 1985 and passed by both houses of the Parliament in August 1985 and the University came into being on 20 September, 1985. Considering that it was an education bill and not a bill dealing with a law and order situation it was a remarkable feat of achievement for the government to have got it enacted in merely five months.

The IGNOU is established by the Government of India by an Act of Parliament. In this respect it is similar to other central universities, but it is unlike the other central universities in its relationship with the University Grants Commission (UGC). In the case of other central universities it is the UGC which provides funds to them, whereas the IGNOU receives its grants directly from the Department of Education, Ministry of Human Resource Development.

1.2.4 Objectives of the IGNOU

The general objective of establishing this institution is to provide educational opportunities to those sections of the society who have been unable to make use of the conventional system. The act of the parliament articulates this in the following manner:

> "The objects of the university shall be to advance and disseminate learning and knowledge by a diversity of means, including the use of any communication technology, to provide opportunities for higher education to a large segment of the population and to promote the educational well-being of the community generally, to encourage the open university and distance education system in the educational pattern of the country and to coordinate and determine the standards in such systems..." (Indira Gandhi National Open University Act, 1985).

The act further states: "The University shall strive to fulfil the above objects by a diversity of means of distance and continuing education, and shall function in cooperation with the existing Universities and Institutions of Higher Learning and make full use of the latest scientific knowledge and new educational technology to offer a high quality of education which matches contemporary needs". To help remote areas, the IGNOU is charged with the responsibility of not only providing distance education but also strengthening the distance education in the country. As the Act says, it shall be the duty of the University to take all such steps as it may deem fit for the promotion of open university and distance education systems and for the determination of standards of teaching, evaluation and research in such systems. This is in fact a very curious brief for a university. Through this, the university is charged with an umbrella function, more like an organisation such as the UGC.

2. Inputs

2.1 Planning and Establishment

Soon after the announcement in January 1985 of the Government's intention of establishing the national open university, the Ministry of Education constituted a committee of distinguished educationists and appointed an officer on special duty with a mandate to prepare a draft bill meant for enactment by the Parliament, and a project report detailing the various aspects related to the establishment of the national open university such as the objectives, the courses to be offered, staffing pattern, governance, relations with broadcasting media and financial estimates. The Educational Consultants India Limited (EdCIL), a public sector company was entrusted to organise this. This whole exercise took about six months. As soon as the draft bill and the project report were submitted to the Government, it took steps to get the bill enacted by the Parliament. It may be noted here that the officer on special duty appointed for the purpose of preparing the draft bill and the project report was the first Vice-Chancellor of The Andhra Pradesh Open University, Prof. G. Ram Reddy. Eventually, he was appointed as the first Vice-Chancellor of the IGNOU. This is mentioned here only to highlight that the expertise acquired through establishing and running the first open university in the country was called upon and channelled into the planning and establishment of the IGNOU.

Initially the task was to recruit nucleus staff and hire accommodation. Since no government accommodation was available, it had to be hired. The main constraints in planning the University were non-availability of accommodation and qualified and trained staff.

The Vice-Chancellor of the University studied the structure and the functioning of some of the Open Universities like the UKOU, Fern Universitat, and the STOU in Thailand. He also held detailed discussions with Lord Walter Perry, the first Vice Chancellor of UKOU, whose services were made available by the British Council through financial assistance from the Overseas Development Administration (ODA). In addition to these, there was a certain input of expertise from other institutions in India itself, such as the university systems, industry, government and a few other national institutions. Apart from the academic and professional staff of the university the bulk of which were drawn from such institutions, there were quite a few others in the various committees and bodies of the university who represented such institutions. All these constituted the external support system during the early days of the IGNOU.

The Delhi Administration allotted land for the construction of the buildings. The University has now 150 acres of land, but not all of it is available for construction because the site is located in an area which is declared as green belt under the Delhi Master Plan. An architectural competition which was organised for this purpose has been completed. The construction of permanent structures will begin only when the final plan is given by the architect. Meanwhile, a public sector undertaking, Hindustan Pre-fab Limited, has been entrusted with the task of constructing the temporary structures. It is hoped that by the middle of 1989 about 80,000 sq ft of space would be available to the University. Meanwhile the University is housed in a number of rented buildings in Delhi.

Procuring equipment took about a year. Now the essential equipment for studio is available, but some more is being acquired under the assistance of the ODA and the Japan International Cooperation Agency (JICA).

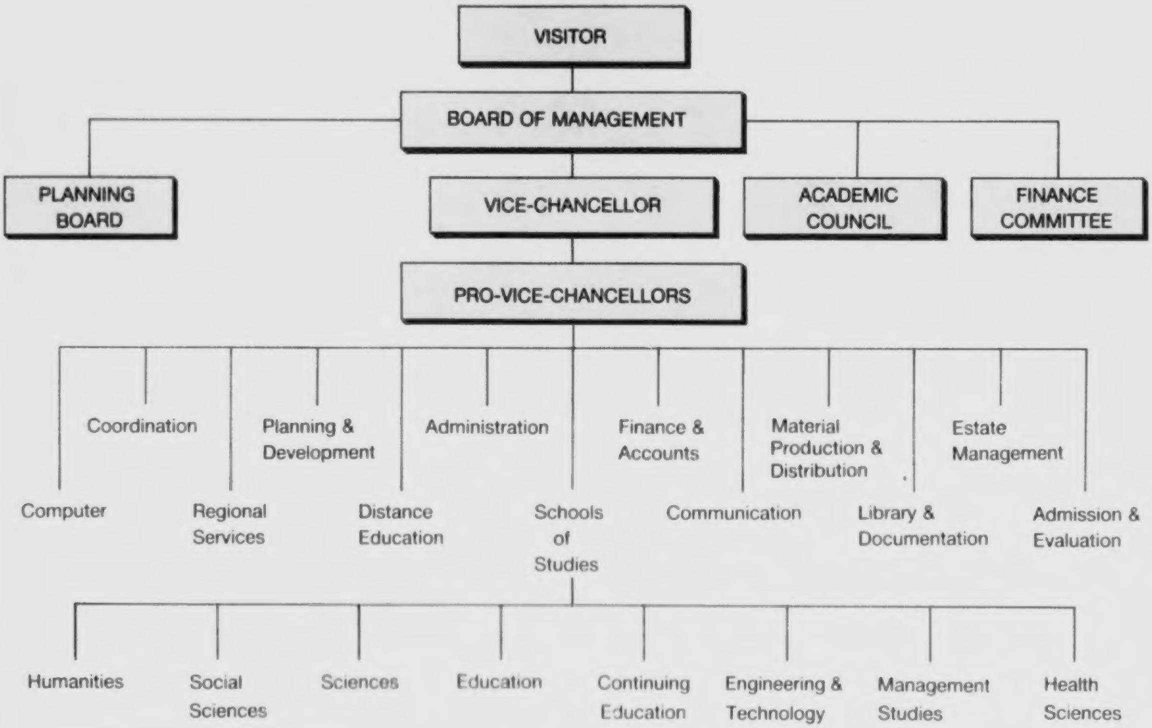
The programmes offered in the first instance were Diploma in Management and Diploma in Distance Education. While a survey showed a demand for the former, the objective of potential manpower development for the open university system was kept in mind while initiating the latter. The initial intake of students was 4,521, of which 3,417 students were enrolled in the Diploma Programme in Management, and 1,104 in the Diploma Programme in Distance Education.

2.2 Organisational Structure

While the university management structure takes into account the special requirements of distance education, it broadly resembles the management structure of other central universities like the Jawaharlal Nehru University and the University of Delhi. Figure I represents the organisational structure of the university. The President of India is the Visitor of the University. The officers of the University are the Vice-Chancellor, the Pro-Vice-Chancellors, the Directors, the Registrars and the Finance officer. The Vice-Chancellor is the principal academic and executive officer of the University and exercises supervision and control over the affairs of the University. He is appointed by the Visitor for a period of five years. The Pro-Vice-Chancellors assist the Vice-Chancellor in respect of such matters as are specified by the Vice-Chancellor. They are appointed by the Board of Management on the recommendation of the Vice-Chancellor. At the moment, there are three Pro-Vice-Chancellors. The Directors are the heads of Schools and Divisions and are appointed by the Board of Management. The Registrars are appointed by the Board of Management on the recommendation of a Selection Committee constituted for the purpose. Each Registrar is allocated a specific block of work. The Finance Officer exercises general supervision of the funds of the University and advises it as regards its financial policies. He is appointed by the Board of Management on the recommendation of a Selection Committee.

The important policy making bodies of the University known as 'Authorities' are the Board of Management, the Academic Council, the Planning Board, the Board of Recognition, the Schools of Studies and the Finance Committee. The Board of Management is the principal executive body of the University. Its membership does not exceed 15 persons. It has the power of management and administration of the revenue and the property of the University. The principal planning body of the university is the Planning Board. Its responsibility is to design and formulate appropriate programmes and activities of the University. It has the right to advise the Board of Management and the Academic Council. It consists of not more than 10 members. The main academic body of the University is the Academic Council. It is responsible for the maintenance of standards of instruction and evaluation in the University. The Academic Council exercises general supervision over the academic matters of the University and gives direction regarding methods of instruction, evaluation or research or improvement in academic standards. The Board of Recognition is mainly responsible for admitting colleges to the privileges of the University. The Schools of Studies deal with academic matters in their respective areas. The Finance Committee is concerned with all important proposals which have financial implications. It also fixes the limit for total recurring and non-recurring expenditure for the year.

INDIRA GANDHI NATIONAL OPEN UNIVERSITY
ORGANISATIONAL STRUCTURE
FIGURE I


VISITOR
BOARD OF MANAGEMENT
PLANNING BOARD
VICE-CHANCELLOR
ACADEMIC COUNCIL
FINANCE COMMITTEE
PRO-VICE-CHANCELLORS
Coordination
Planning & Development
Administration
Finance & Accounts
Material Production & Distribution
Estate Management
Computer
Regional Services
Distance Education
Schools of Studies
Communication
Library & Documentation
Admission & Evaluation
Humanities
Social Sciences
Sciences
Education
Continuing Education
Engineering & Technology
Management Studies
Health Sciences

The work of the University is broadly divided into academic and administrative units. On the academic side, there are the Schools based on the broad groupings of the disciplines. They are the academic homes of the various instructional programmes that the university offers. At the moment, there are the following eight Schools of Studies:

Humanities,
Social Sciences,
Sciences,
Education,
Management Studies,
Continuing Education,
Health Sciences
Engineering & Technology.

In each School, there are disciplines. For example, in the School of Sciences, the disciplines are : chemistry, life sciences, physics and mathematics. Each School is headed by a Director who is one of the Professors from the School. Since the IGNOU would like to promote inter-disciplinary courses, the schools are not formally divided into discipline-specific departments. However, each discipline is looked after by a Professor or a senior academic.

The administrative work of the University as well as the professional-supporting functions to the academic activities of the universities are managed by the Divisions. At present, the Divisions are: Planning & Development, Administration, Finance & Accounts, Estate Management, Recognition & Coordination, Material Production & Distribution, Regional Services, Library & Documentation, Admission & Evaluation, Computer, Communication, and Distance Education. Each Division Looks after an important block of work. For example, the Material Production & Distribution Division is in charge of printing of the material and also its distribution to the students. Each Division is headed by a Director or a Registrar.

2.3 Academic Programmes

Having started with two programmes, the university is now offering the following programmes:

1. Bachelor's Degree Programme (B.A.)
2. Bachelor's Degree Programme (B. Com.)
3. Diploma in Management-Module I
4. Diploma in Management-Module II
5. Diploma in Distance Education
6. Diploma in Creative Writing (English)
7. Certificate Course in Food and Nutrition
8. Certificate Course in Rural Development

In all there are 53 courses in these programmes. In the near future, the university proposes to launch the following programmes:

1. Bachelor of Library and Information Science
2. Diploma in Management (Module III)
3. Bachelor of Science
4. Certificate in Computer Applications
5. Diploma in Higher Education
6. Diploma in Management (Module IV)
7. Diploma in Rural Development
8. Diploma in Food and Nutrition
9. Diploma in Child Care and Education
10. Master of Distance Education
11. Diploma in Creative Writing (Hindi).

2.4 Staffing

There are three categories among the staff of the University-academic, professional/technical and administrative/support. The policy of the University is to involve a large number of outside experts on a part-time basis, in addition to the nucleus full-time staff. The part-time staff includes Academic Counsellors at the study centres, course writers and part-time consultants at the headquarters.

The staff structure of the University is being presented in Table I. Table II presents the distribution of staff at the headquarters, regional centres and study centres. The academic staff possess high academic qualifications. The selection criteria are the same as in other central universities. The other professionals include producers, printing technologists, computer engineers and so on.

TABLE I : Staff Structure (as on 31 – 8 – 1988)

	Academic/ Professional	Administrative/ Support	Total
Number of Whole Time Staff	182	498	680
Number of Part Time Staff	5234	550	5784
Total	5416	1048	6464

TABLE II : Distribution of Staff

	Academic/ Professional	Administrative/ Support	Total
Head Quarters			1431
a. Fulltime Staff	166	442	
b. Part Time Staff	23	–	
C. Part Time Course Writers (approx.)	800	–	
Regional Centres	16	56	72
Study Centres			4961
a. Staff (Part time)	110	550	
b. Academic Counsellors (Part Time)	4301	–	

2.5 Students

The University began with an initial enrolment of 4,521 in 1987. Fresh enrolment during 1988 was 24,612. There are at present 27,368 students on the rolls of the IGNOU. The analysis of enrolment by programme is presented in Table III. Table IV presents the distribution of students according to gender, age, geographical distribution and employment.

TABLE III : Enrolment

Sr. No.	programme	1987	1988
1.	Diploma in Management-Module I	3,417	5,226
2.	Diploma in Management-Module II	–	702
3.	Diploma in Distance Education	1,104	1,093
4.	Certificate in Rural Development	–	358
5.	Bachelor's Degree programme	–	14,122
6.	Diploma in Creative Writing (English)	–	310
7.	Certificate in Food & Nutrition	–	2,801
	Total	4,521	24,612

TABLE IV : Student Profile

(Per cent)

Category		BDP	DIM	DDE	DCW	CFN
1. Gender	a. Male	80.98	96.55	72.46	69.06	36.54
	b. Female	19.02	3.45	27.54	30.94	63.96
2. Age	a. Below 30	73.86	39.15	35.35	36.77	–
	b. 30 – 40	19.53	43.21	40.02	38.06	–
	c. Above-40	6.61	16.84	24.63	25.16	–
3. Geographical Distribution	a. Delhi	33.81	34.14	18.48	41.61	37.87
	b. Three States Surrounding Delhi	19.58	27.58	20.95	18.39	19.99
	c. Other Regions	46.60	38.28	60.57	40.00	42.14
4. Employment	a. Service	49.36	96.56	78.48	–	–
	b. Self-employed	10.25	3.44	–	–	–
	c. Unemployed	33.22	–	11.63	–	–
	d. Others	7.16	–	9.89	–	–

NOTE : BDP – Bachelor's Degree programme; DIM – Diploma in Management; DDE – Diploma in Distance Education; DCW – Diploma in Creative Writing; CFN – Certificate in Food & Nutrition.

3. Educational Process

3.1 Course Development

The two terms used in the University for the academic activities are Programmes and Courses. A 'programme' connotes a broad but definite field of academic activity such as Diploma Programme in Management or Diploma Programme in Distance Education, Bachelor's Degree Programme in Humanities and Social Sciences or Bachelor's Degree Programme in Commerce. Academic units of a programme are known as 'courses' and each one of them has a credit value.

The idea of a programme may be initiated through a survey, as a policy directive from the Government, as a request from outside agencies, or out of the deliberations among the faculty of the school concerned. Once the idea of launching a programme comes up, an expert committee is constituted. The expert committee consists of external experts and internal academics. The committee deliberates on the relevance of the proposed programme and if it endorses it, evolves a broad curriculum framework. The expert committee also suggests names of external experts who could be invited to be members of the course teams for the various courses within the programme.

The course team consists of the full-time faculty of the school concerned, a set of subject experts and a subject editor. The subject experts and the subject editor are normally from outside the University whose services are hired. This team is assisted by a language editor, and members of the Divisions of Distance Education and Communication, all of whom are normally full-time employees of the University. The subject experts write the various course units. The subject editor scrutinises the units from the point of view of the content. The intervention of the full-time faculty takes place at every stage of course development. The language editor edits the language aspects of the unit. The Division of Distance Education provides expertise regarding the design of the print matter according to the demands of the distance-learning situations. An expert from Communication Division works with the course team in identifying the topics on which audio and video programmes have to be developed. The academic notes on these programmes are provided by the full-time faculty or the subject experts in the course team in consultation with the full time faculty. The producers in the Communication Division undertake script writing and production of the programmes on the basis of these academic notes. In some cases, professionals outside the university are commissioned to produce the programmes.

The course materials developed at the IGNOU follow a design appropriate for the self instructional mode. The course content is divided into small units. The instructional objectives are presented in behavioural terms at the beginning of each unit. Each unit is of about 5,000 words and is made of sub-units, each sub-unit covering one content point. Normally, at the end of each sub-unit is given a self-check exercise with model answers, with the aid of which the learner assesses his own performance. At the end of each unit is given a summary of the content presented therein. The members of the course team are given detailed orientation about this design before they start writing. The full-time faculty members from the Schools concerned, and the Division of Distance Education monitor the adherence of these principles. After the deficiencies are identified, remedial action is taken by way of asking the course writers to re-do the material. In certain cases the faculty members within the School concerned modify them and in certain other cases the faculty members from the Division of Distance Education modify them.

The educational philosophy of the IGNOU is influenced primarily by the fact that the clientele is mainly adult learners who have their own definite objectives for studying a course, and secondly, that they are in a distance-learning situation. Therefore, they should be allowed to study at their own pace and convenience and should be free to have the choice of courses that suit them. This philosophy also takes into account the nature of the programme concerned and also the conventional views about that programme. The various programmes of the University reflect different shades of educational philosophy. For instance, in the Certificate Programme on Rural Development, the emphasis is on imparting factual knowledge as well as development of ability to apply knowledge to limited and complex tasks. The educational outcomes evaluated in an examination situation also depend on the philosophy behind the programme concerned.

There is a five tier quality checking system which is the main strength of course development procedure. These tiers are: the school, the subject editor, the language editor, the Division of Distance Education and finally the Pro-Vice-Chancellor (Academic). The watch dog for quality control is the full-time faculty in the school concerned and the Pro-Vice-Chancellor (Academic). Another resource which contributes towards the quality of courses consists of experts in various disciplines from the formal universities and research institutions who act as course writers.

At the moment the responsibility for setting of standards and monitoring them is shared by at least five agencies within the University. The expert committee consisting of eminent scholars in the area appointed by the University sets standards, and the monitoring is carried out by the academic staff of the School concerned, the Division of Distance Education, Pro-Vice-Chancellor (Academic) and the Academic Council.

After the individual academics from outside the IGNOU system have accepted to develop parts of a course, a meeting of all of them (the course writers) is convened along with the editor. In this meeting, one of the faculty members, who is a specialist in educational technology/distance education, explains to them how the lessons are to be written. The editor and the faculty in charge of the course explain the aims and objectives of the course. In the same meeting, the editor discusses the broad contents of the lessons. The responsibility for monitoring lies with the faculty member in charge of the course. When the first draft is produced, it is again discussed on by the editor, the author and the faculty member in charge of the course.

A number of problems are faced in the development of courses. Sometimes, the writers do not adhere to the principles of unit design and write in the form of a learned article. When this happens, the internal faculty member or the editor brings this to their notice. Some of them agree to re-write and some others do not. In the latter case, the internal member in charge of the course arranges to transform it into distance education mode with the help of other resources. This has sometimes led to the author of the lesson questioning the competence of the internal staff members. Such disputes are overcome by means of discussion with the authors. The intervention of the Director of the School and occasionally that of the Pro-Vice-Chancellor (Academic) are sought.

The second important problem faced in producing the course is the delay on the part of course writers in submitting the lessons in time. Since most of the course writers are busy academics, some of them do not send the units in time. This causes a lot of concern within the organisation. Sufficient time is given for writing units and this is constantly monitored. If the course writer does not give the lesson in time, either an internal faculty member is requested to do the unit or another person who agrees to write within a short period of time is approached.

3.2 Delivery: Methods and Media

A diagram representing the instructional system at the IGNOU is presented in Figure II.

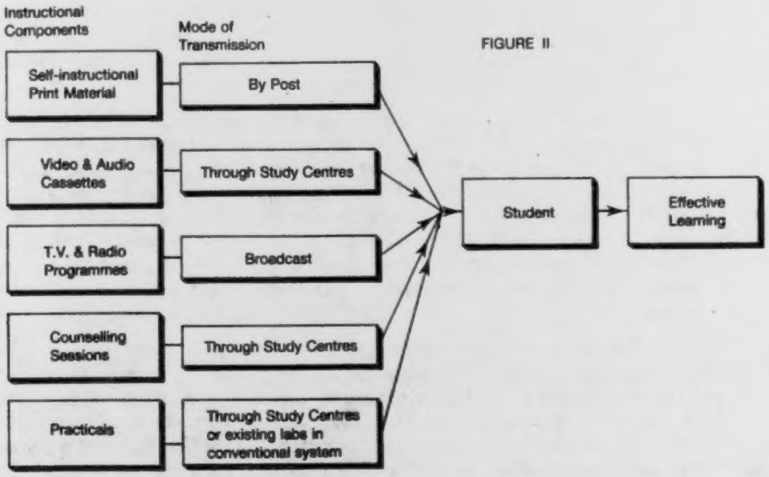
The major component in the instructional system followed by the IGNOU is self instructional print material. This is delivered to the students by mail.

Audio and video programmes are meant to supplement the print material. Normally for a block of three units, i.e., about 15,000 words in print, one video programme of 20 minutes and two audio programmes of 15 minutes each are developed. These programmes either take up crucial content points among those covered in the print and clarify them in a manner which the media concerned permit, or they provide an alternative perspective in which to view a content point which is already covered in print. These programmes are at present delivered in the form of cassettes to be viewed or listened to in group situations in the study centres. In the near future, the University will begin broadcasting these programmes through radio and TV.

The distance learner has the opportunity of face-to-face interaction with academic counsellors (tutors) for each subject at the study centres. These are organised either regularly at the study centres or in the form of a mid-term or term-end intensive contact programme. The academic counsellors are subject experts, mostly teachers in a local college or a university whose part-time services are hired by the IGNOU. Attendance in study centres is not compulsory except for science courses. When the science programmes are introduced, it is proposed to organise practical work through the study centres in the existing laboratories in local colleges.

INSTRUCTIONAL SYSTEM AT IGNOU

FIGURE II



At the moment computers are being used only for marking of assignments and administrative purposes, but there are plans to use the computers for teaching purposes as well.

As stated above, for the on-going programmes the study centre component is not compulsory. However, if a student regularly visits the study centre, it is estimated that he will spend about 20% of the total study time to work through the counselling sessions, the video and the audio programmes put together, and the remaining 80% for the print material and the tasks related with it.

The university has standard media-mix formulae for different courses. This is formulated by the various academic schools in consultation with the Pro-Vice-Chancellor (Academic). The course team, however, recommends departures from the formula which are considered on their merits.

In the selection of the media, various criteria are taken into account; the most important being the availability of technology and its accessibility to students. Their acceptability to teachers and students are also important factors. Equally important is the suitability of the media to the subject matter. The cost of technology and the time involved in producing are also assessed before a certain media is adopted.

The assessment of the University is that its print, audio and visual materials are quite effective. However, as far as the accessibility of audio visual material is concerned it is felt that much more needs to be done by way of opening many more study centres or using non-governmental organisations, such as voluntary agencies, etc., to make these materials easily accessible to people in the rural areas.

3.3 The Teaching-Learning Process

In the instructional system at the IGNOU, the teachers are: (a) the subject experts who are members of the course team, (b) full time faculty, and (c) their surrogates at the study centres, the academic counsellors (tutors). Counselling and assessment of the assignments are done by the academic counsellors. Evaluation in the term-end examinations is done by the full time faculty or other experts whose services are hired for this purpose.

The students study the printed self-instructional material which the university sends by mail. They assess their performance through various types of in-text questions such as the self check questions. They also submit the assignments, the number of which differs from course to course, but which are at the least two per course. Besides, they have the option of visiting the study centres and viewing and listening to the video and audio programmes and also of interacting with the counsellor or in self-help groups.

The general philosophy of this University is that the student learns according to his own pace and convenience. He interacts with the staff occasionally. There is a regular schedule according to which he has to start his course. There is also a regular schedule to take the examinations. Those who cannot take the examination in the first instance or feel any difficulty, can take it subsequently. It is possible for them to take the re-sit examinations a number of times. For instance, a student can take as many as eight years to complete the Undergraduate Programme which is of three years duration. The time schedule within the duration of a course is regulated through the submission of assignments. The students are informed about the contact sessions in each course, as well as the counselling services and the different instructional methods and media.

While a lot of freedom is given with regard to pacing, the student is not free to join the course any time of the year. He has to start the course at a particular time of the year. For instance, those who want to join Diploma in Management will join by January/February of every year. They are required to take examinations according to the dates prescribed by the University. However, as explained earlier they can re-sit for examinations if they fail and they may do so several times, if they so choose, to pass examinations. Another mechanism of pacing is the assignments. It is insisted that they are submitted according to a fixed schedule. Regional Services Division of the University provides guidelines to regional centres and study centres regarding the collection and evaluation of assignments.

The students are free to use the counselling services at the study centres, and the same is true about the use of different teaching methods, i.e. they may go to study centre for self learning, for audio video facilities, and self check. For guidance and study, students contact the coordinator and the academic counsellors at the study centres. Such contacts are voluntary and they can be made as many times as a student desires.

Some of the characteristics of the teaching-learning process in vogue in this University that merit special mention are: (a) learners are allowed their own place and pace to work through the course; (b) learners can obtain degrees through cumulative process of credit collection and (c) multi-media approach to the process of teaching and learning,

3.4 Student Support Service

Tutoring and counselling are done by part-time staff and in some cases by the full-time staff of the University. Though not as a rule, full-time faculty of the university both at the head quarters and the regional centres sometimes act as counsellors. There is no uniform policy regarding the visits of staff to local centres, but in certain programmes, e.g., distance education, such visits are regularly organised whenever needed. Counselling is generally done at the study centre according to the time schedule prepared by the coordinators of the study centres and these may pertain to any type of student needs. The qualifications of the tutors and counsellors are comparable to those of the academics working at the conventional universities.

At the moment only academic counselling (i.e.; tutorials) are being organised; the practical classes and the field work will commence when science and technology courses get started. The audio and video cassettes are also played in the study centres. There are no residential programmes, but there are intensive personal contact programmes for certain courses. Self help groups are encouraged wherever students are willing to build the system. These are encouraged especially in Diploma in Distance Education. The data about the proportion of students involved in such groups are however not available.

Library services are provided as a matter of policy at all the study centres, regional centres and the headquarters. At the headquarters, the University has a library which will surely grow as a major library in the country. There is a good collection of reference books and standard journals here. It has, probably one of the best collections on the subject of distance education. The regional centres have moderately good collections of reference books as well as textbooks. The study centres have mostly textbooks which are meant as additional reading materials for the students.

The University has set up 120 study centres in different parts of the country which are controlled by 12 regional centres. The distribution of these is being represented in the map (Figure III). A study centre is located in an existing college or an educational institution which agrees to provide space for its location. The facilities available at the study centre are a library, audio and video material, tutorial/counselling support and general information services. Students can have access to them in the evenings on all working days and for the whole day on Sundays. The main function of the study centre is to provide help to the students. There are counsellors who perform both counselling and tutorial functions. They are part-time employees drawn from either the host institution or other institutions in the town or city. The counselling sessions are fixed and students are informed about them. The staff have very high academic qualifications and are working either as academics in the local educational institutions or occupying important positions in business and industry. The tutorial sessions are arranged by the study centre in accordance with the guidelines given by the University. There are personal contact programmes and seminars organised at the study centre level by the coordinators. The staff from regional centres visit the local study centres to monitor the programmes from time to time. The study centres respond to enquiries by the students. This function is mainly performed by the coordinator and his assistants. Some of the students' enquiries are handled by the regional centres and also by the headquarters. Telephone tutorials and interactive radio are not used in this University.

INDIRA GANDHI NATIONAL OPEN UNIVERSITY
Distribution of Regional Centres and
Study centres as on 1988–89

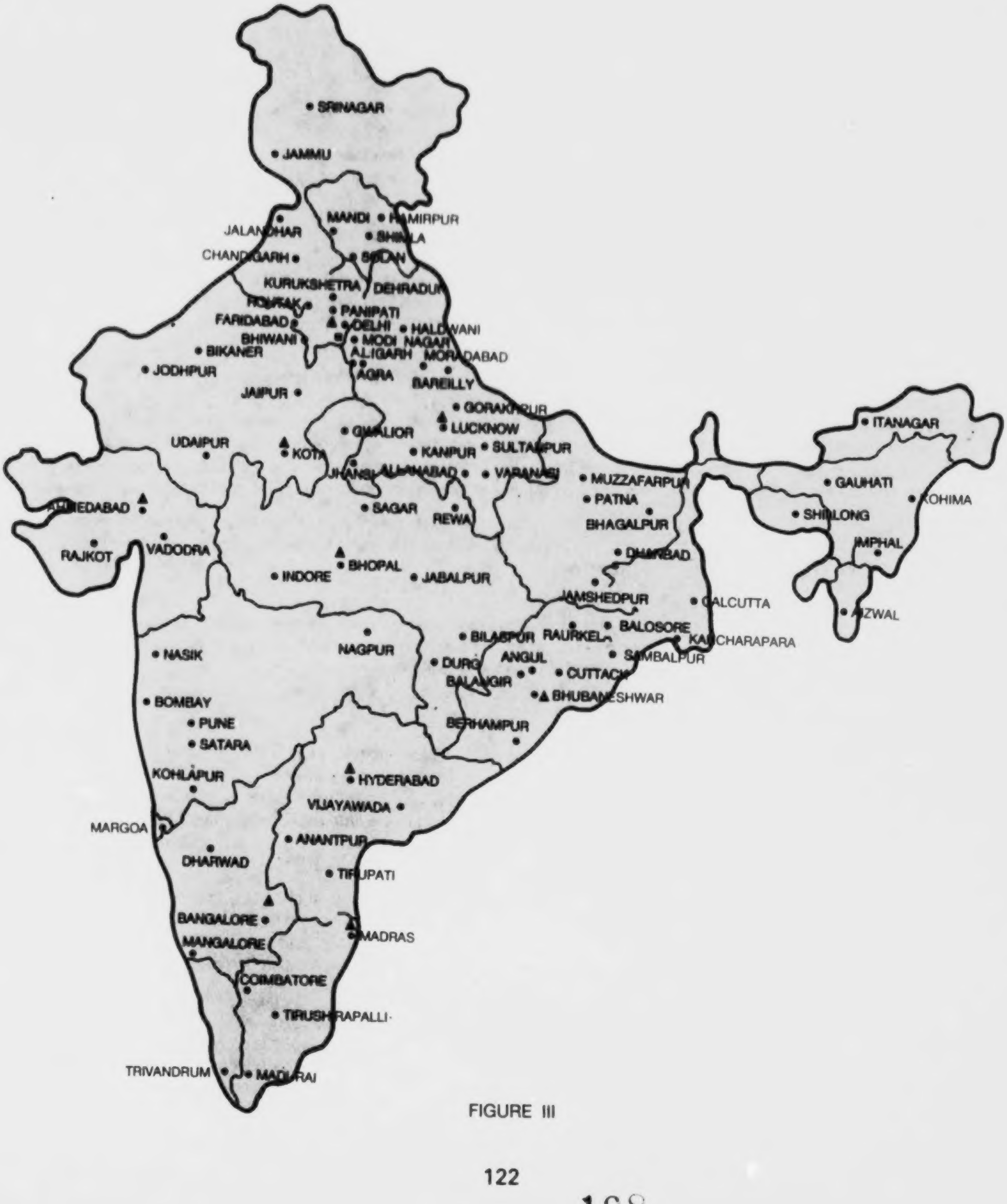

SRINAGAR
JAMMU
JALANDHAR
MANDI
HAMIRPUR
SHIMLA
CHANDIGARH
SOLAN
KURUKSHETRA
DEHRADUN
ROHTAK
PANIPATI
FARIDABAD
DELHI
HALDWANI
BHIWANI
MODI NAGAR
ALIGARH
MORADABAD
BIKANER
JODHPUR
AGRA
BAREILLY
JAIPUR
GORAKHPUR
LUCKNOW
GWALIOR
UDAIPUR
KOTA
KANPUR
SULTANPUR
JHANSI
ALLAHABAD
VARANASI
MUZZAFARPUR
PATNA
AHMEDABAD
SAGAR
REWA
BHAGALPUR
RAJKOT
VADODRA
BHOPAL
DHANBAD
INDORE
JABALPUR
JAMSHEDPUR
CALCUTTA
BILASPUR
RAURKELA
BALOSORE
KANCHARAPARA
NASIK
NAGPUR
DURG
ANGUL
SAMBALPUR
BALANGIR
CUTTACK
BOMBAY
BHUBANESHWAR
PUNE
BERHAMPUR
SATARA
KOHLAPUR
HYDERABAD
VIJAYAWADA
MARGOA
ANANTPUR
DHARWAD
TIRUPATI
BANGALORE
MADRAS
MANGALORE
COIMBATORE
TIRUSHRAPALLI
TRIVANDRUM
MADURAI
ITANAGAR
GAUHATI
KOHIMA
SHILLONG
IMPHAL
AIZWAL

FIGURE III

Two-way communication between the learner and the institution is effected mainly through assignments, face-to-face sessions and letters. Telephones are used but rarely. Assignments provide important opportunities for communication. The counsellors correct the assignments and send them to the students with detailed comments. Counselling service is provided mainly in face-to-face situations. Students are encouraged to meet their Counsellors when they feel the need for assistance. The University contacts the students through study centres if they have not submitted the work in time. There are different tutors for different courses. The schools of the University sometimes directly communicate with students through letters or telephone and provide information as well as counselling. The institution contacts students through communications sent along with the despatches of materials made at regular intervals. These communications inform the students about the various relevant matters pertaining to the course, including suggestions about the submission of work from time to time.

At the lower levels of the undergraduate programme such as the preparatory and foundation levels, the role of tutor and counsellor is performed by one and the same person. However, as the students move on to the advanced levels when they take up elective courses, the tutors have to be subject specialists and one course is looked after by one tutor. However, in professional diplomas there is a tutor for each individual course.

The University takes special steps to improve access and retention rates of students. For example, to facilitate access the University has open entry as well as a flexible entry system for admissions. It allows flexible subject combinations and also cumulative collection of credits to obtain a degree. The University is flexible with regard to attendance at contact and counselling sessions. The fee structure is quite attractive for the students in the country. The general policy with regard to medium of instruction is to use English and Hindi, but provision is made in some cases to impart instruction in some regional languages as well. Students are allowed to work at their own pace and obtain degrees according to their will through cumulative collection of credits. At least two exams (an exam at the end of the term and a re-exam normally after six months) per course are organised every year in order to facilitate students completing their courses.

Publicity, information services and enquiries are mainly handled by the headquarters and the regional centres. Publicity is done through the radio, TV and the newspapers, and also through the word of mouth and brochures.

(a) Enquiries are handled by all the 3 units – the headquarters, regional centres and study centres.
(b) Admission and enrolment are done by the headquarters.
(c) Fees have to be sent by students direct to the headquarters. This is done mainly through banks.
(d) Students' records are maintained at the headquarters – copies of which are made available to regional centres and study centres.
(e) Examinations are conducted by the Division of Examination at the headquarters through the agency of regional centres, usually at the study centres.
(f) Coordination of the study centres is done mainly by the regional centres.

In view of the large enrolments which are likely in the years to come, it is proposed to decentralise several activities (such as admissions) to the regional centres and the study centres. Preparatory work for this purpose is being done at the Regional Services Division.

3.5 Assessment of Students

Assessment of students is done partly by examination and partly by assignments. Examinations which are conducted at the end of a term serve the purpose of summative evaluation. Assignments are provided while the course is in progress and while they serve mainly as formative evaluation, they do contribute to the overall scores considered for the award of degrees, diplomas etc. The proportion of the weight ranges from 70% to 75% for term-end summative evaluation and 30% to 25% for the scores in assignments.

The assignments are framed by and large by the faculty members of the school concerned. Forms of assignments vary. They may comprise short and open ended questions, multiple choice questions, short essays and longer essays. Assignments are sent for assessment to the academic counsellors who are given detailed orientation by the Regional Services Division as to how to evaluate these assignments and what kind of feedback to be given to the students. The assignments are evaluated by the academic counsellors and sent back to the students with detailed feedback. A sample of the evaluated assignments are photo-copied and the copies sent to the headquarters for scrutiny. This is by way of monitoring the evaluation process. Information about the students' performance in the assignments is regularly supplied to the headquarters for being recorded and processed.

For the term-end examinations, questions are set and the answer sheets evaluated by the faculty members for the school concerned and by experts from external systems whose services are hired for this purpose. The questions are mostly of the following types: short essays and longer essays. Examinations are held in the towns where study centres are located and these are supervised by academics from the local educational institutions whose services are hired for this purpose.

3.6 Programme Evaluation

The IGNOU has not yet evolved a system of evaluating the course material. However, it is proposed to set up a Division of Programme Evaluation for evaluating course material and delivery method and researching on teaching methods. Since it is a new University, all the courses introduced by it are new. However, the university did revise the course materials of its management and distance education programmes in the second year itself. It is proposed to systematically and structurally revise the courses every four years.

There is a regular provision to obtain feedback about course material from students. It is done in two ways: (a) formally and (b) informally. Formally, it is done with the use of questionnaires, which are sent to students to get their responses, and informally through open-ended responses from the students, academics and at times from public too. These responses are analysed and modifications are made in the materials accordingly. These are done mostly by the faculty members in the school concerned.

3.7 Staff Development

The IGNOU attaches a lot of importance to the training of its staff for course development. There are different types of training programmes: (a) training programmes for the University academics which are conducted with the help of the ODA and include overseas experts as trainers; and (b) orientation programmes organised by the Division of Distance Education or Communication Division as and when needed by the University staff. The IGNOU extends this facility to the faculty members of the state open universities as well.

Apart from this, the part-time coordinators and counsellors at the study centres are given orientation programmes. Only through such programmes can a positive attitude towards distance education system be developed among them. And this attitudinal change is crucial, since for an average student, the interaction with the open university is mediated through the counsellor and the coordinator. It is generally felt that more emphasis has to be given to the orientation programmes for the part-time counsellors.

Besides, some of the IGNOU's academic, technical and administrative personnel undergo training in or undertake short study visits to the U.K. These are made possible under the financial assistance available from the ODA through the British Council. The UNESCO Regional Office for Asia and Pacific has also made contributions to conduct such training programmes, mainly when the programmes are meant to serve the entire nation.

4. Finance

One aspect of the open university system that often attracts a lot of attention is the costs involved in its functioning. In this section some relevant information related to the funding of the IGNOU and the costs involved in its establishment and functioning are presented. By March 1988, the University has incurred a capital cost of US $ 5,376,000. The construction of the main campus is yet to start. Therefore, the major capital investment is still to be made. During 1987–88, the recurring cost has been US $ 3,574,000. Out of this US $ 1,036,000 has been spent on staff salaries and US $ 2,538,000 has been spent on other items. The major source of finance is the Central Government. It provides 90.65% of the funds. For specific items, the State Governments have also provided funds. Only 3.45% of the funds come from students and related sources.

4.1 Sources of Finance

The sources from which the IGNOU received its funds during 1987–1988 are presented in table V.

TABLE V : Receipts of Finance during 1987 – 88

Sr. No.	Source	Amount (in 'OOO US $) By Item	total
1.	Public Funding (Grants directly received)		
	a. From Central Govt. Sources	10,480	
	b. From Local Govt. Sources	75	
	Total		10,555 (91.30%)
2.	Students and other users		
	a. Tuition and Examination Fees	385	
	b. Registration and Admission Fees	14	
	Total		399 (3.45%)
3.	Other Receipts		
	a. Income from buildings, land and other property	8	
	b. Grants from national agencies for research and other academic activities	20	
	c. Miscellaneous	43	71
	Total		(0.61%)
4.	Support in terms of facilities (National Amount Saved)		
	a. Free Accommodation for Study Centres (96 × $ 385 per month per centre)	444	
	b. Free Accommodation for Regional Centres (10 × $ 770 per month per centre)	92	
	Total		536 (4.64%)
	Total Receipts	11,561,	(100%)

As can be seen in table V, not all inputs are in monetary terms. Quite a few inputs come in from various sources in the form of facilities given free of costs to the IGNOU. For instance, the regional centres are housed in accommodations of about 6,000 sq ft each, given to the IGNOU by the state government for full time use free of cost. Similarly, the study centres are housed in accommodations given to the IGNOU free of cost for part-time use (of say 1,400 hours a year per centre). The national amount thus saved is indicated above. Radio and TV will begin to be used for course transmission in the near future. The transmission will be done free of cost. Again, as can be seen from the table V, the public funding accounts for over 91% of the total financial input thereby indicating that the system is heavily subsidised. However, it may be mentioned here that when the initial stage is over and the enrolment figures stabilise, the proportion of income from student and user sources will increase significantly.

4.2 Costs

The IGNOU is still in the process of being established. The physical infrastructure in the form of a permanent campus is yet to be constructed. The major capital cost incurred till now is for the purchase of residential flats for the faculty members. The major capital cost, however, is yet to be incurred in the construction of the permanent campus on the land given to the University at a nominal cost. In the table VI are given the items of capital cost so far incurred by the University.

TABLE VI : Capital Costs (Till March 1988)

(in 'OOO US $)

Sr. No.	Items	Amounts By Item	Amounts Total
1.	Buildings		2,400
2.	Equipment	1,148	2,976
	a. Studio Equipment and Fitting	180	
	b. Computer hardware and installations	315	
	c. Office Equipment	269	
	d. Scientific Equipment	463	
	e. Books	25	
	f. Library furniture and equipment	504	
	g. Office furniture	72	
	h. Vehicle		
	Total		5,376

Table VII and VIII present the recurring costs on staff salary and non-salary items during 1987-88, respectively.

TABLE VII : Staffing : Recurrent costs during 1987 – 88

(in 'OOO US $)

	Academic	Administrative/ Support	Total
Whole Time	363	399	762
Part Time	188	86	274 (26.45%)
Total	551 (53.19%)	485 (46.81%)	1,036 (100%)

TABLE VIII : Non-Salary Recurrent Costs during 1987 – 88

(in 'OOO US $)

Item	Amount	%
Conveyance (travelling + maintainance of cars)	115	4.53
Postage and telegrams	177	6.97
Stationery	92	3.63
Buildings rent and taxes	677	26.67
Printing	679	26.75
Audio & Video (production & materials)	204	8.04
Computer (materials & maintenance)	42	1.65
Library expenses	21	.83
Admissions and evaluation	119	4.69
Seminars and training	92	3.62
Advertisements	192	7.57
Miscellaneous	128	5.05
Total	2538	100

5. Educational Outcomes

The programmes and materials of the University are available to other institutions in and outside the country. At the moment the course material is being made available to a few distance education institutions in the country. Besides, there are plans for reasonable extension of expertise and services, in the future – the programme in Distance Education helps in developing expertise and services in the area of distance education. In the table IX are given details of the instructional materials so far produced by the University.

TABLE IX : Output in terms of Instructional Materials (as in Dec. 1988)

Sr. No.	Item	Number	
		By Item	total
1.	Printed books/blocks		155
	a. in English	121	
	b. in Hindi	23	
	c. in regional languages	11	
2.	Audio Cassettes		160
3.	Video Cassettes		110

About 30,000 students are already catered to by the IGNOU in the first two years of its life. One academic cycle is complete and the second is on the verge of completion. Table X gives a picture of the input and output of students during the first cycle of 1987. Of the total students enrolled, just over 14% were passive. However, they cannot be treated as drop-outs, for there is a possibility of their reviving their interest in the programme on a later date. Neither can the 61% students who could not graduate during the first cycle be treated as having stagnated; the open system followed by the University might enable many of them to graduate through the subsequent cycles.

TABLE X : Input and Output of students during the first Cycle (1987)

Sr. No.	programme	Enrolment	Active students	No. of students passed in all courses		Graduates	Still on roll
				End of Exams	Mid 1988 Re-exam		
1.	Diploma in Management	3,417	2,824	592	226	818	2,006
2.	Diploma in Distance Education	1,104	963	98	115	213	750
	Total	4,521 (100%)	3,787 (83.76%)	690 (15.26%)	341 (7.54%)	1,031 (22.80%)	2,756 (60.96%)

This University is about three years old. It is premature to see the effects of the system on conventional or non-traditional education systems. However, if the initial response is any indication it appears that the University's courses and approaches to the processes of teaching and learning are going to have positive influence on both conventional and non-traditional education systems. Impact of the University's programmes on the society is yet to be seen. Three years is too short a time to observe the real impact on the society. However, both the print as well as electronic media materials are in great demand from all quarters of the society, which is an indication of expected positive influence on the society.

6. Future Trends and Priorites

The IGNOU is growing at a tremendous pace, both as an organisation and in terms of the clientele it serves. The challenges ahead are formidable. The new possibility of quality tertiary education through an open learning system in the distance education mode has stimulated the aspirations of the people, especially those disadvantaged sections who have so far been neglected by the formal conventional mode of higher education. There is a growing demand for the IGNOU to spread its network extensively and thereby enrol larger numbers. There is also a demand for diversification of the programmes it offers. There are many long-term and short-term programmes on the anvil. The emphasis will be on need based and socially relevant programmes with a clear priority given to continuing education. However, the general education programmes will also be strengthened.

The student support service network will surely spread especially to the geographically inaccessible regions, and in those areas (such as the tribal pockets) where there is a marked educational backwardness. This is in line with the IGNOU's objective of working towards greater equity in educational opportunity. A standing committee has been set up to work out a comprehensive strategy in this direction. It is also proposed to constitute a permanent cell within the Planning and Development Division to constantly ascertain the educational needs of backward and inaccessible regions and plan suitable programmes for them. There is also a proposal to involve non-government organisations such as voluntary agencies in course transmission and student-support for some of the programmes, for which there is a possibility of assistance from the UNESCO.

The Regional Centres will be given more and more academic functions including translation of existing course material into the regional languages in collaboration with the state governments. In fact, recognising this possibility, many state governments have dropped the idea of establishing their own open universities. They look up to the Regional Centres of the IGNOU to serve this function.

It will definitely be the endeavour of the IGNOU to maintain the quality in the material it produces. The intention is not to offer a poor substitute to the conventional face-to-face higher education; it is on the other hand to raise the standards of higher education in general through quality material. People at the IGNOU clearly visualise the possibility of these materials being used in the conventional institutions in the near future.

There is the statutory mandate that the IGNOU should act as a coordinating agency for all the distance education systems in India. To carry out this function, a coordination council has been set up whose main function is to formulate policies related to inter-institutional relationships between the IGNOU and the state open universities (There are at present three such open universities). It consists of Vice-Chancellors of the state open universities, Secretary to the UGC, Joint Secretary in the Ministry of Human Resource Development, apart from the Vice-Chancellor of the IGNOU who is the Chairman.

The world is becoming increasingly a single organic whole, especially in the wake of the new information revolution. Collaboration among the open universities all over the globe is therefore an imperative. The 'Commonwealth of Learning' created to provide a forum for collaboration among open universities of the commonwealth countries is one step in this direction. A similar venture is the Asian Association of Open Universities. The IGNOU certainly anticipates further possibilities of international cooperation and networking of a similar nature.

7. Conclusion

To close we would like to reflect on the words with which we opened this study. It was suggested that to bring the fruits of progress within the reach of masses, education has to be a mass-phenomenon; and that to achieve this objective the country is faced with three problems – shortage of funds, large population and shortage of time. What we have presented in this study is a description of the attempt, in the form of the Indira Gandhi National Open University, that has been initiated to resolve these problems. And what we have outlined as the future trends in this closing section is a mere indication of how the University is exploring into and extending the reach of conventional and non-conventional educational programmes, how the entire country is being brought into a well-organised educational network, and how international resources and expertise are planned to be pooled for the betterment of not only India but many other countries of the world as well-very truly in line with the principles which the UNESCO is working for.

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UNESCO
Project Report

An Asian Institution Making Large-Scale Use of Communications Technologies For Educational Purposes : a Case Study of Sukhothai Thammathirat Open University (STOU)

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Thailand
1988

I. THE CONTEXT

1. National Profile

1.1 Geography

Thailand means "Land of the Free". It has an area of approximately 512,820 square kilometers. To the North and West Thailand is bordered by Burma, by Laos to the Northeast, by Kampuchea to the East and Malaysia to the South.

Thailand is naturally divided into four parts. The North is mountainous with rather cold weather in the winter. This enables the cultivation of many species of fruits and vegetables native to temperate climates such as apples and strawberries. The Northeast is a plateau and quite dry, with chilly weather in winter. The Central region is an alluvial plain, and from ancient times the Chao Phraya River has been the main means of communication. The South is largely forested, with heavy precipitation. The eastern and western coasts, offer many beautiful beaches, and it is the major rubber-producing area of the country as well as the main area for cultivating tropical fruits, such as rambutan, durian, mangosteen, etc.

Thailand has a tropical monsoon climate with temperatures ranging between 35° C in the summer and 19° C in winter. From May to July the Southwest monsoon brings heavy rains until October. From November to January the Northeast Monsoon brings cool, dry air to most of the country, and this is followed by the summer or hot-season.

1.2 Population

In 1985, the population of Thailand stood at about 52 million, with an approximately equal ratio of males to females. Ten percent of the population resides in the Bangkok Metropolis and approximately 80% dwell in rural areas. About 1/3 of the total population of 52 million live in the Northeast, while the remainder live in the Central part, the North and the South in that order. Due to an efficient family planning programme the rate of population growth has been steadily reduced over the last 20 years, and the government has stipulated a further reduction to 1.5% population growth per year towards the end of the 5th National Economic Development plan or by about 1986.

1.3 Religion and Language

Approximately 95% of the population are Buddhists and Buddhism is the state religion. The remainder of the population worship Islam (4.2%), Christianity and other faiths.

The Thai Language is the official language used in government, education and as the medium of communication.

1.4 Economic Features

The majority of the population are engaged in agriculture and agricultural products still comprise the majority of the country's exports. Examples are rice, maize, rubber, tobacco, cassava and fishery-related products. Nevertheless, industry and tourism are rapidly assuming greater importance and it is expected that they will generate more revenue for the country than agricultural products in the near future.

In the last 25 years the economy has grown at a rapid rate. The national income has grown to 18 times that of 25 years ago. Per capita income is now 10 times higher (Office of the National Board for Economic and Social Development 2530 : 1)

However, this recent economic growth has had effects on economic stability, finance and primarily in equality in the distribution of income. Moreover, the environmental conditions of the majority of the country's society have forced the government to find quick measures to alleviate the above problems by attempting to increase the income to the poverty-stricken and creating jobs.

The guidelines for economic development during the 6th National Social & Economic Development Plan (1987–1991) have the following major objectives: improving efficiency in national development in the area of human resources, scientific and technological and natural resource development, as well as improving management and implementation by using systematic and self-sustaining work as the basis. Emphasis will be put on production methods, marketing and raising the level of basic economic factors to lower the cost of initial investment and to expand the variety of products. This goes hand-in-hand with expanding markets and emphasises distribution of income and development to the provinces, thus opening the rural areas by targeting the lower-income group for priority in national development. (Office of the National Board for Economic and Social Development 2530 : 3)

1.5 Communication and Media

Communication within Thailand is now convenient at all times, whether by road, rail, shipping or air.

Roads are the most important means of communication, used both for transporting goods and people. Most roads are now paved. Railways come next in importance and are state-managed and owned. Rail lines reach the Laos, Kampuchean and Malaysian borders.

Shipping in Thailand is largely used for the transport of goods. Internal shipping is generally dependent on the major rivers, especially the Chao Phraya River which flows down from the North emptying into the Gulf, a short distance south of Bangkok. The Chao Phraya is a major means of transporting agricultural products from the North to Bangkok. The Port of Bangkok handles most international shipping and with the expansion of international trade the government has constructed new deep-water ports at Phuket, Songkla and Cholburi to handle large freighters.

Air transport is convenient, both domestically and internationally. Bangkok is the center for all aviation, including tourism, which has been increasing dramatically. The government has declared that the airports in Phuket and Songkhla in the South and Chiangmai in the North as international airports to facilitate the tourist industry.

2. Educational Profile

2.1 School System

From the start, the Thai government has regarded education as the most important tool in fostering national unity and development skills in a variety of areas to put higher education within the reach of more students or enable more people to find employment. However, in the National Education Scheme of 1977 the goals of education were expanded to include relating education to the quality of life and society by emphasizing the importance of moral values.

The current Thai educational system classifies into 4 levels:

2.1.1 The Pre-primary School Level.
This level stresses overall development and preparedness, including physical and mental health, social relationships and personality development. The government had a policy of encouraging cooperation between the private sector and local authorities in assuming responsibility for approximately 18% of the population between the ages of 4–6 to take part in this level in 1985 (Ministry of Education Summary of Education Statistics 1986 : 28)

2.1.2 The Primary School Level.
This level stresses improving students' basic skills in several areas including reading, writing, adequate knowledge and ability to apply in future occupational roles and developing them into good citizens in a democratic system. (NEC. National Educational Scheme). At this level education is compulsory for 6 years. In 1985 an estimated 96% of children between 7–12 year of age attended primary school. The increase in the number of pupils attending primary school has been dropping following the lower rate of increase in the general population resulting from the governments' family planning programme.

2.1.3 The Secondary School Level.
This level is divided into two sub-levels, 3 years for each: the lower and upper levels. This level aims at supplying student with academic and professional education suitable for their age, interests, knowledge and individual ability. The percentage of students compared with the general population studying at lower & upper levels of secondary school aged 13–15 and 16–18 is 35.35% and 25.44% respectively.

2.1.4 The Higher Education Level.
This follows the latter level of secondary school. It stresses furthering knowledge and reasoning to enhance academic advancement aiming at self-reliance and creativity at the academic and professional levels to assist in development of the nation. In addition, this level aims at developing persons with virtue, ethics, knowledge and understanding of cultural traditions to lead lives of value to themselves, society and the nation. This level comprises universities, colleges and specialized institutions, such as teachers' colleges, technical colleges and vocational institutions. In 1985, institutions of higher education with limited admissions were able to admit only 6% of the population aged 19–24, or a total of about 20,000 students out of 300,000 graduating from the 6th year of secondary school. (Ministry of Education 2529 4.28 and 53).

2.2 Non-formal Education

Out of the population of about 51 million is 1985, only 10.5 million were receiving formal schooling. Out of this total, not less than 5 million lacked basic skills in reading, writing and the Thai language. Moreover, not less than 17% of the laboring-age population lacked primary-level education. (Department of Non-formal Education 1982) To assist in development of this population group the government has set up non-formal education at an equivalent level and has expanded education at the formal level for those who are more than 40 years of age. The purpose is to provide the population outside the formal education system with the opportunity to obtain basic education and information, and to develop the necessary skills and ability for their livelihood and work. (NEC. 2523 : 77)

To assist in the development of non-formal education, the government has stipulated a policy stressing building skill in the ability to think, to do, to solve problems and to organize. This will be achieved through mobilizing local resources and utilizing them in line with the needs of the local people and officials. Additionally, the role of the mass media will be expanded in educating the people to better their living conditions and to assist them in their work. This will require the government agencies concerned to set standards for using the mass media, producing programmes and organizing training programmes for educational media producers to benefit the people to the utmost. (NEC. 2527 : 77) In 1986 about 23 million people received formal education in various forms. (NEC. 2527 : 84)

2.3 Unmet Demand

As can be seen from the statistics on higher education given above, there are two important factors contributing to the inability of 'closed' or traditional institutions of higher education to meet the demand for accepting more student:

2.3.1 Approximately 300,000 students graduate yearly from the final year of secondary school. However, the closed institutions are able to accept about 20,000 new students per year, leaving the majority of secondary school graduates unable to continue their education.

2.3.2 Persons failing to pass the entrance examination for institutions of higher education and those already employed have only a slight chance of succeeding in continuing their education. This is due to the constant increase in secondary school graduates who are also competing to enter the closed institutions of higher education. Moreover, the already employed find it very difficult to obtain leave to study full-time, which is generally required by such institutions. For these reasons, both those failing the entrance examination and the employed have little chance indeed of continuing their education.

2.3.3 There is little opportunity for the lower-income groups and the rural population to take advantage of higher education. Data reveal only 6% of persons from agricultural families are able to pass the university entrance examination, and most of these come from families living in Bangkok. Since about 80% of the population are rural agriculturalists, it is essential to increase their opportunities for higher education.

2.4 Options for Meeting the Demand

The combination of the limited capacity of closed institutions of higher education to accept new students and the increasing demand each year for higher education has made it necessary for the government to carry out three measures to alleviate this problem. These are:

2.4.1 Establishing private institutions of higher education.

The government has always refused to permit private institutions to become official universities due to educational standards and national security. However, the increasing demand for higher education coupled with the inability of the state universities to meet this demand caused the government in 1985 to permit 17 private institutions to become officially accepted institutes of higher education, with a total enrollment of about 43,000 students and a yearly admission of about 16,000 new students. (Ministry of education 2528 : 54)

2.4.2 Establishing Ramkhamhaeng University.

Despite the authorizing of private universities, the total number of students accepted, even when coupled with that of state-run institutions, was still inadequate to meet the needs of all interested in higher education. Every year, a large number of students failed to pass the entrance examinations and those holding jobs still lacked the opportunity to further their studies. Moreover, private institutions charge a higher fee for tuition, thus making it difficult or impossible for the lower-income students to enter. Because of these constraints, there was a demand for the setting up of an open university to give the above groups the opportunity to further their education without having to regularly attend classes.

The government realized the importance of establishing such an open university and Ramkhamhaeng University was formally opened in 1972 as a free choice institution, accepting applicants without having to pass an entrance examination and without requirements for attendance. Nevertheless, Ramkhamhaeng did set up some requirements for certain subjects. However, regular attendance was not compulsory. With the establishment of Ramkhamhaeng University, the opportunities for higher education have been greatly increased in as much as there are no limits to the number of students admitted yearly.

2.4.3 Establishing Sukhothai Thammathirat Open University (STOU).

Despite the setting up of Ramkhamhaeng University with no limits to the number of admissions, the system is of little benefit to those living outside the Bangkok metropolitan area because the majority of examinations and educational services are located in Bangkok. Furthermore, the examination period of each semester takes up a rather long period of time causing high expenses for travel, accommodation, etc. for those living in the provinces, as well as posing problems for the employed, who must take leave during the examination periods. Moreover, the teaching system still leans toward the traditional classroom attendance method which puts those unable to regularly attend classes at a disadvantage. To further educational opportunities, particularly for those in the provinces and the employed to increase their academic and professional knowledge the government established STOU in 1978 with the aim of using the distance education system. There are no formal classes, but various media are used instead in order to enable students to efficiently study on their own.

II. STOU'S GENERAL BACKGROUND

1. General Mission Statement

Sukhothai Thammathirat Open University was established as a government "open" university; that is, there are no conventional classrooms and the distance education system is used, depending on integrated media, correspondence, radio and telecasts. The rationale for the establishment of this university is to provide an institution of higher education that:

a) Provides the opportunity for independent studying, with no classroom attendance requirements;
b) Broadens access of the people to higher education
c) Enables adults of all ages to continue their education to upgrade their knowledge and skills and thereby upgrades the development of the population as a whole
d) Opens the door to higher education for more secondary school graduates.

His Majesty the King signed the Sukhothai Thammathirat Open University Act on September 5, 1978, making it the eleventh government university with all rights and privileges as the other state universities.

Under the Sukhothai Thammathirat Open University Act of 1978 it was stipulated that the educational system of the university would be one without formal classes per se, providing education through correspondence, radio and television broadcasting or other media which would enable students to learn by themselves without having to attend classes.

Following this some two years of preparation were required before the first student admissions. This occurred on December 1, 1980. The first three schools opened were Liberal Arts, Educational Studies and Management Science. In 1982 the schools of Law, Health Science, Economics, Home Economics and Agricultural Extension and Cooperatives were opened. In 1983 and 1984 respectively, the schools of Political Science and Communication Arts were opened, increasing the number of schools to ten.

2. Specific Objectives

STOU is a university following the principle of lifelong education, aiming at upgrading the quality of the people's life, upgrading the knowledge of working professional people and expanding the opportunities for secondary school graduates to further their education so as to meet the needs of individuals and society as a whole. By using the distance education systems and with the above stated aims in mind, the University has the following specific objectives:

a) To provide a high level of academic and professional education to upgrade the peoples' knowledge in line with personal needs as well as the needs of society as a whole.
b) To undertake research for academic advancement and to assist in the nation's development.
c) To provide academic services to society through disseminating knowledge so as to upgrade the level of quality of the general population.
d) To conserve traditions and encourage beneficial attitudes in order to uphold the identity of the Thai nation.

3. Relationships with Government and other Agencies

As a government open university which under the STOU ACT is required make use of various media in instruction without required classroom attendance, STOU must cooperate with the other government agencies in order that the University's operations achieve the objectives intended for its establishment and at the same time meet the wishes and aims of the university itself. Relationships with various government and other agencies are as follows:

3.1 The Government.

As a government university it is allocate a sum from the government budget yearly to help cover operational expenses. This amounts to approximately 20% of the University annual expense. Another important source of governmental assistance is that on October 1, 1981 the Cabinet authorized STOU to broadcast educational programmes on television daily from 6.30–8.00 p.m.

3.2 The Department of Public Relations.

This agency, which is responsible for radio and television broadcasts, has extended cooperation to STOU by allowing daily broadcasts of STOU educational programmes through a network of radio stations under the Department's responsibility as well as allowing STOU education programmes to be broadcast both in Bangkok and in various provinces.

3.3 The Mass Communication Authority of Thailand.

This agency has permitted STOU to broadcast its educational programmes over the Authority's Television Stations daily from 6.30–7.30 p.m.

3.4 The Communication Authority of Thailand.

This agency has assisted STOU by arranging the sending of educational materials produced by the University to students by mail.

3.5 The Ministry of Education.

This agency has rendered assistance to the University through two types of cooperation. The first is by permitting certain provincial secondary schools to serve as provincial educational centers for STOU to carry out various activities such as orientation for new students, tutoring and holding examinations and selling entrance forms. The second type of cooperation with the Ministry is the establishment of an STOU Corner in the Provincial Libraries. The purpose of this is to enable STOU students and the general public to study materials used by the University for its courses, as well as recorded lessons of STOU.

3.6 Various Government Agencies and Universities.

These have extended cooperation to STOU by permitting their personnel to participate in the University's work as members of course teams, assembling instructional materials and supplying qualified academics to take part in radio and television broadcasts. Some government agencies, for example the Ministry of Public Health and the Ministry of Agriculture and Cooperatives, permit the University to make use of hospitals, health centers and certain agricultural extension centers (where students of the Schools of Health Science and Agricultural Extension and Cooperatives are employed) as centers where students may gain practical experiences.

The University has also received cooperation from the Japanese government in the form of an unconditional grant of 176 million baht for the construction and purchase of buildings and equipment used in producing video and television programmes used for instructional purpose. In 1988 the Japanese government is extending even more assistance in order to expand the studies used for broadcasts as well as supplying aid to purchase equipment needed to increase the production of the University's broadcasts.

All this cooperation has resulted in STOU being able to expand its educational activity and thereby benefit the Thai people, no matter in which part of the country they live. With the network of broadcasting and the specific areas of expertise of the agencies cooperating with the University in the field of education, the availability of education has been greatly expanded while the cost has been dramatically reduced.

III SYSTEM DESIGN

1. Planning and Establishment

1.1 Physical Infrastructure

In the initial phase of its existence, STOU had no permanent home of its own. It was temporarily housed in the Bureau of University Affairs' building and other government agencies and rented privately-owned office space until in 1977 the University received a donation of 30 rai of land for its own use. However, this area was insufficient for all the needs of the University and about 109 rai of additional land was purchased for a total of 139 rai.

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Beginning in 1982, construction began with site development and the first buildings, for which 85 million baht came from the government, 173 million baht from the University's revenue and 176 million baht as an unconditional grant from the Japanese government. The buildings constructed during the initial phase included the Administration Building, Academic Affairs Buildings 1 and 2, the Library Building, housing the Office of Documentation and Information, the Educational Broadcasting Production Center, the Seminar Center Building and Service Buildings 1 and 2, which when completed enabled the University to move all of its units to the permanent site on December 9, 1984.

1.2 Initial Admissions

The University was ready to admit the first students two years after its official establishment on December 1, 1980. The first three schools opened were the Schools of Liberal Arts (which did not admit its own students, but offered basic courses to serve the other schools), the School of Educational Studies and the School of Management Science initially with a major in Construction Management, totalling, 82, 139 students for the first academic year.

2. Organizational Structure

The University Council is the highest decision-making body at STOU, in charge of policy-making and planning. There is also the Academic Senate which is responsible for setting academic policy.

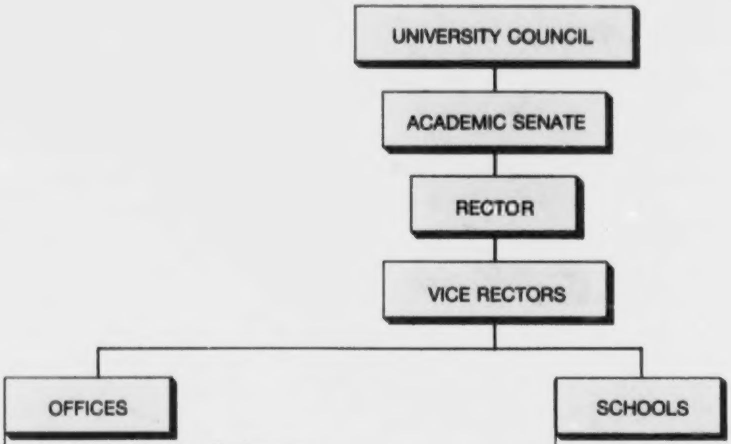
The University is organized into schools and offices. The schools are responsible for all activities concerning curriculum and instruction within each school. The offices play a supportive role to ensure efficient operation of the distance education system. At present the University has 10 schools and 6 offices (see Chart 1)

2.1 Decision-Making Structure.

Chart 1 shows the administrative structure of the University, its functions and the personnel responsible for decision-making.

CHART 1

Administrative Structure of STOU.



- Office of Educational Technology
- Office of Educational Service
- Office of Academic Affairs
- Office of Registration, Records, and Evaluation
- Office of the University Press
- Office of Documentation and Information

- School of Liberal Arts
- School of Educational Studies
- School of Management Science
- School of Law
- School of Economics
- School of Home Economics
- School of Health Science
- School of Agricultural Extension and Co-operatives
- School of Political Science
- School of Communication Arts

2.1.1 The University Council.

The supreme administrative body is composed of a chairman appointed by His Majesty the King and five other Ex Officio members who are: the Permanent Secretary of State for University Affairs or his representative, the Director-General of the Department of Public Relations or his representative, The Director of the Mass Communications Organization of Thailand or his representative, the Government of the Mass Media Organization of Thailand or his representative and the Rector. The remaining members are four to nine distinguished outsiders appointed by the King. A representative of the Academic Senate of the University elected by the Academic Senate and a Vice Rector, upon the advice of the Rector, is appointed as secretary to the Council.

The Council's most important duty is in policy and regulation-making of the University, setting up, combining and dissolving schools and offices or institutes within the University including selection and removal of the Rector and tenured professors as well as authorizing the appointment of high-level administrative personnel, such as vice rectors or directors of offices. In addition, the Council is also responsible for authorization of degrees, diplomas and certificates.

2.1.2 The Academic Senate.
This organization is responsible for all academic affairs of the University, in particular, curriculum development, instruction and evaluation as well as reporting to the University Council on matters concerning the granting of degrees, diplomas and certificates and establishing, combining and dissolving schools, offices and institutes, and dissolving schools, and institutes, for example. Moreover, it is responsible for recommending distinguished members for the University Council, and searching for ways to facilitate education, research and academic services.

2.1.3 The Rector.
This is the Highest-ranking administrator of the University. This position is appointed by His Majesty the King upon recommendation of the University Council for a period of four years.

2.1.4 The Vice Rector.
This position is second only to that of the Rector and is filled following the Rector's recommendation or removed by the University Council. The terms of office are the same the Rector's.

2.1.5 The Schools.
STOU is academically structured differently from the other universities. That is, instead of having faculties and departments, the academic administration is divided into separate schools, equal in status to conventional faculties. They are responsible for curriculum development, instructional materials, various educational media, preparation of examinations, tutorial services and organizing activities to increase students knowledge and experience in various forms.

Each of the schools has its own committee and the chairman. The membership of each school committee is from three to seven persons; all of them are chosen by the faculty of their respective schools for a term of four years. The committees are responsible for the administration and academic work of their faculty as well as carrying out any other work assigned by the University Council.

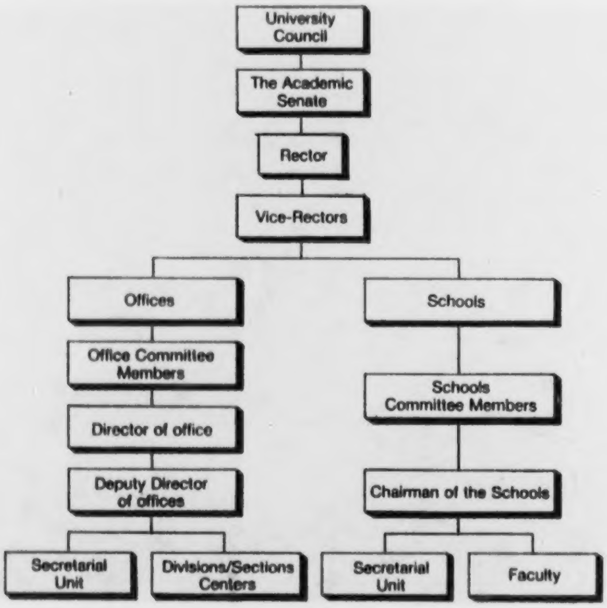
2.1.6 Offices and Institutes.
There are set up to support and expand or offer service co-operation to the academic units of the University. Each office or institute has a director to oversee operations with a term of four years. They may be appointed by either a faculty committee or another authority of the University.

At present the University has set up seven offices to oversee responsibility in various areas. There are:

a) Office of the Rector. Responsible for executive administration, finance, materials, personnel and planning.
b) Office of Academic Affairs. Responsible for faculty development, instructional materials, curriculum and instruction and research.
c) Office of Registration, Records and Evaluation. Responsible for evaluating the University educational results, research and experimental development.
d) Office of Educational Services. Responsible for guidance, organizing mailing of educational (teaching) materials and organizing tutorial teaching.
e) Office of Documentation and Information. Responsible for various types of educational media service for the University by setting up STOU corners in provincial libraries and area resource centers.
f) Office of Educational Technology. Responsible for radio and television broadcasts, film and video including establishing systems and research for the University's educational media.
g) Office of the University Press. Responsible for printing and sales of teaching materials and other University materials.

CHART 2

Academic and Office Administration of STOU



2.2 Organization and Functions. (administration)

At present, the University has divided the administrative work into seven sections (see Chart 3) each one of which is headed by a vice-rector and an assistant rector. In summary, the vice-rectors have the following responsibilities respectively:

a) Vice Rector for Academic Affairs. Responsible for the schools, work of the Office of Academic Affairs and the Office of Registration, Records and Evaluation.

b) Vice Rector for Administration. Responsible to the Office of the Rector concerning registration of documents financial matters, work concerning officials, procurement and buildings and property.

c) Vice Rector for Planning. Responsible for work related to planning at the Office of the Rector, information and work of the Computer Center of the Office of Registration Records and Evaluation.

d) Vice Rector for Operations. Responsible for work of the Office of the University Press.

e) Vice Rector for Special Projects and Activities. Responsible for work of the Office of the Rector concerning master-plans and construction, as well as special programs and activities.

f) Vice Rector for Development. Responsible for work of the Office of the Rector concerning foreign relations and resource development and work of the Office of Educational Technology.

g) Vice Rector for Educational Service. Responsible for supervising the Office of Educational Service and the Office of Documentation and Information.

CHART 3

Central Administrative Units of STOU

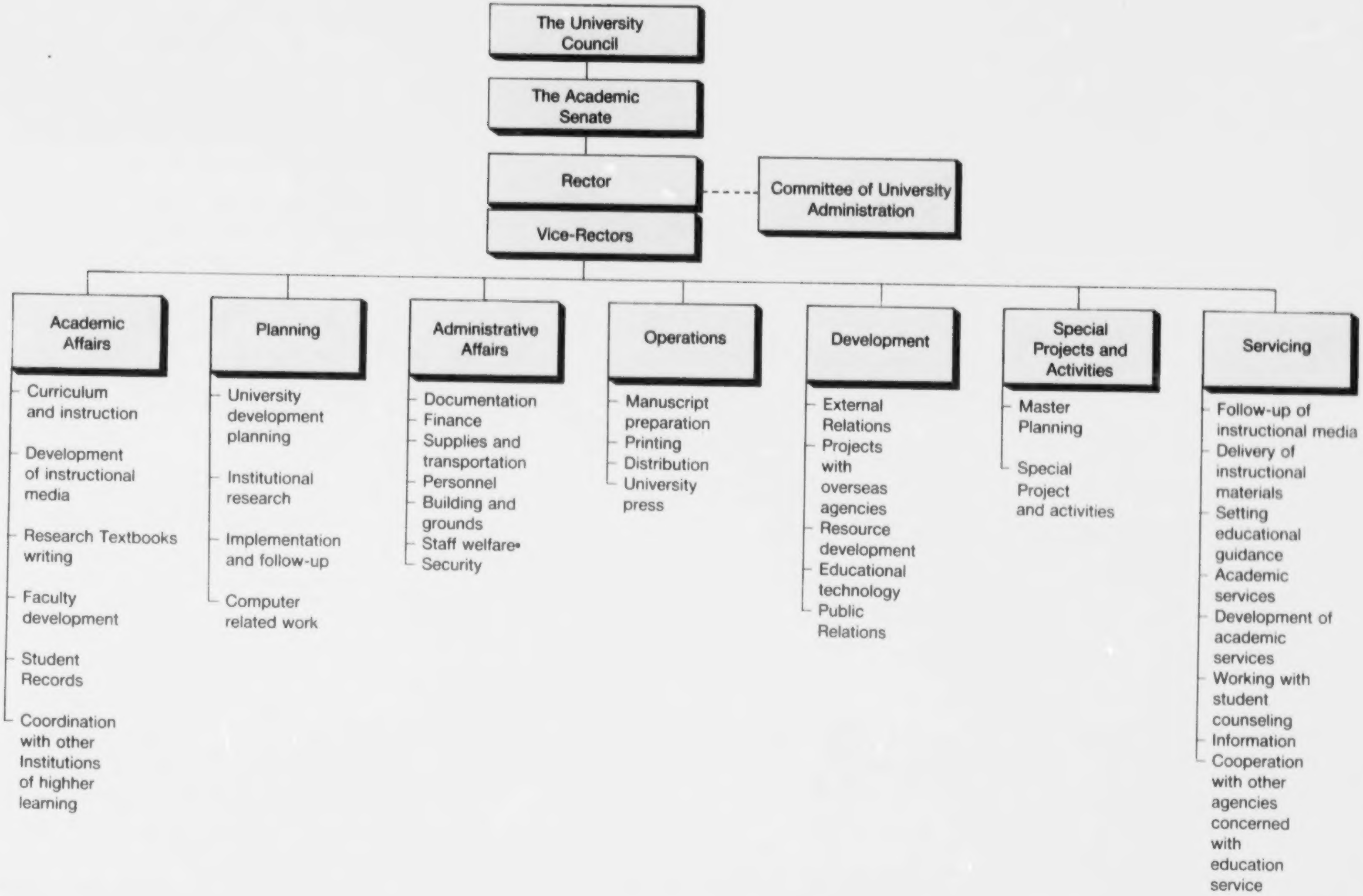
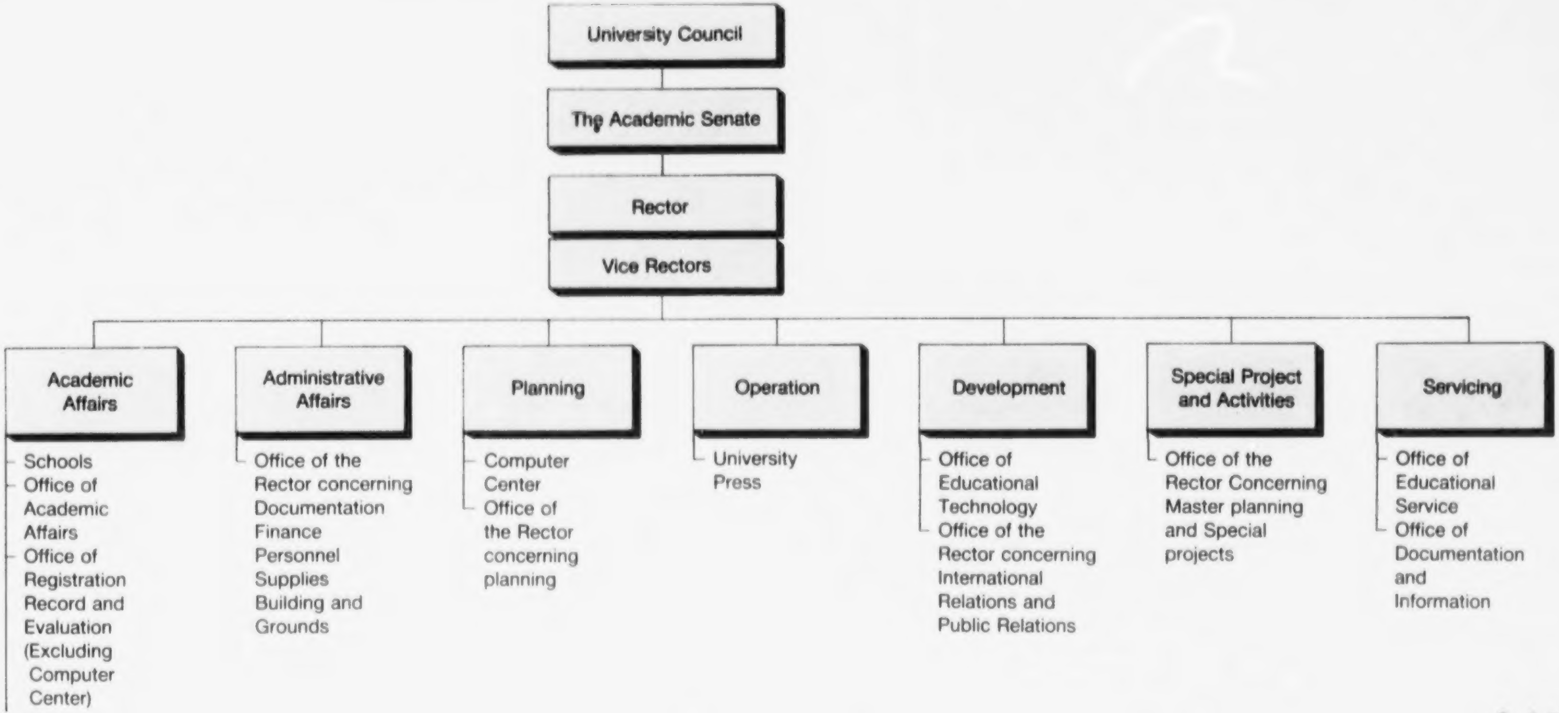

The University Council
The Academic Senate
Rector
Committee of University Administration
Vice-Rectors
Academic Affairs
Curriculum and instruction
Development of instructional media
Research Textbooks writing
Faculty development
Student Records
Coordination with other Institutions of highher learning
Planning
University development planning
Institutional research
Implementation and follow-up
Computer related work
Administrative Affairs
Documentation
Finance
Supplies and transportation
Personnel
Building and grounds
Staff welfare•
Security
Operations
Manuscript preparation
Printing
Distribution
University press
Development
External Relations
Projects with overseas agencies
Resource development
Educational technology
Public Relations
Special Projects and Activities
Master Planning
Special Project and activities
Servicing
Follow-up of instructional media
Delivery of instructional materials
Setting educational guidance
Academic services
Development of academic services
Working with student counseling
Information
Cooperation with other agencies concerned with education service

CHART 4

Division of Units by Area of Responsibility


University Council
The Academic Senate
Rector
Vice Rectors
Academic Affairs
Schools
Office of Academic Affairs
Office of Registration Record and Evaluation (Excluding Computer Center)
Administrative Affairs
Office of the Rector concerning Documentation Finance Personnel Supplies Building and Grounds
Planning
Computer Center
Office of the Rector concerning planning
Operation
University Press
Development
Office of Educational Technology
Office of the Rector concerning International Relations and Public Relations
Special Project and Activities
Office of the Rector Concerning Master planning and Special projects
Servicing
Office of Educational Service
Office of Documentation and Information

2.3 Staffing Profile

In 1987 the University had a total staff of 1,640 people, of whom 339 were instructors. The majority of the remainder were attached to the various units. In addition, the University hired temporary staff to assist in carrying out various tasks on a daily basis totalling 91,270 man/days. (STOU 1987 : 40)

As for special instructors, the University invited specialists from other university and agencies; both public and private, to assist in preparing instructional material and to teach as well, for a total of approximately 3,000 people. (STOU : 1986 : 33)

2.4 Budget

The University has sources for its budget needed to meet expenditures required for operating the institution. Firstly, the University receives a portion of the governmental budget annually, and secondly, the University utilizes its own revenue which is used to supplement the annual government funding.

In 1987 the University received a total of 68,800,300 baht from the Government. The University's own revenue was added to cover expenditure. The ratio of funds from the government budget to the university's own revenue was 18.91 : 81.09 (STOU 1987 : 42–43). The budget from both sources can be divided into the following detailed table of expenditures.

TABLE 1: University Budget for 1987 by Activities

Activity	Governmental Budget (Baht)	University Revenue (Baht)
Higher educational administration	24,925,100	84,777,000
Planning and organizing higher education	20,421,200	10,333,900
Improvements in educational quality	22,093,000	192,851,900
Research in higher education	590,900	362,700
Academic services to the public	137,600	2,184,700
Student affairs	632,200	3,805,700
Cultural activities		665,700
Total	68,800,300	299,981,600

Remark : 25.50 Baht = 1 U.S. Dollar

TABLE 2: University Budget for 1987 by Expenses

Expenditure	Govt'l Budget (Baht)	University Revenue (Baht)
Salaries-permanent staff	55,011,000	4,752,500
Salaries-temporary staff	203,700	17,042,700
Remuneration, sundry services and supplies	11,513,200	214,346,100
Public utilities	1,500,000	33,817,000
Equipment, properties and construction	48,000	18,544,900
Subsidies	523,600	4,474,400
Total	68,800,300	294,981,600

It can be seen from Tables 1&2 that about 80% of the money allocated from the governmental budget is used for salaries and wages while about 73% of the University revenue goes to Remuneration, Sundry Services and Supplies which fall under the category of improving the quality of education, for example, production of various educational media which has been allocated an initial budget of about 6%.

3. Growth and Development

3.1 Development of Courses and Programmes

In the 1987 academic year, STOU opened four courses for one year leading to certificates. Those students entering the School of Arts and Law must complete upper secondary education (grade 12) or lower secondary education (grade 9) with a minimum of 5 years of working experience and be at least 20 years of age. The teachers' certificate course of the School of Educational Studies is open to employed teachers who have completed at least lower secondary education (grade 9) and are at least 20 years of age.

The programmes leading to Bachelor degrees as of 1987 are divided into 16 branches and 28 majors. Out of these there are 16 two-year, 8 three-year and 24 four-year continuing education courses (see Table 3). The 2 – year courses are open for those with a diploma in the subject for which they wish to register. The 3 – year courses are open for those who have completed upper secondary education (grade 12) or have completed lower secondary education (grade 9) and have at least 5 years of working experience and at least 20 years of age. For the School of Educational Studies, Health Science and Agricultural Extension and cooperatives, applicants for admission must be employed or have one to five years' previous working experience in the respective field of study.

3.2 Courses Opened

As Table 4 shows, there were 23 courses available in the 1980–81 academic year. By 1987 there was a total of 601 courses.

TABLE 3: Courses in the 1987 Academic Year

School	Level	Field	Major	Duration of Study			
				1 yr.	2 yrs.	3 yrs.	4 yrs.
Liberal Arts	Certificate	–	English for Teachers	/			
			English for Lawyers	/			
Educational Studies	Certificate	–	Teacher Training	/			
	Bachelor Degree	Elementary Education	Child Education		/	/	
			Elementary Education		/	/	
		Secondary Education	Thai		/	/	
			Social Studies		/	/	
			Sciences		/	/	
			Mathematics		/	/	
		Educational Administration	Educational Administration		/		
Management Sciences	Bachelor Degree	Business Administration	General Management		/		/
		State Enterprise Administration	Public Administration				/
		Construction Management	Construction Management		/		
Law	Certificate	–	Land and Resource Law	/			
	Bachelor Degree	Law	Law			/	/
Health Science	Bachelor Degree	Public Health	Public Health Administration		/		/
			Public Health		/		/
		Nursing	Nursing		/		/
Economics	Bachelor Degree	Economics	–			/	/

School	Level	Field	Major	Duration of Study			
				1 yr.	2 yrs.	3 yrs.	4 yrs.
Home Economics	Bachelor Degree	Home Economics	Public Nutrition		/		/
			Child and Family Development		/		/
Political Science	Bachelor Degree	Theory and Technique of Political Science					/
		International Relations					/
Agricultural Extension and Cooperatives	Bachelor Degree	Agricultural Extension			/		/
		Cooperatives			/		/
Communication	Bachelor Degree	Communication Arts	Journalism			/	/
			Broadcasting			/	/
			Radio and Television			/	/
			Motion Pictures			/	/
			Advertising			/	/
			Public Relations			/	/

TABLE 4: Courses Open by Semester and Academic Year

ACADEMIC YEAR	1980 – 1981		1982		1983		1984		1985		1986		1987	
OPEN SEMESTER	First Time	Repeat	First Time	Repeat	First Time	Repeat	First Time	Repeat	First Time	Repeat	First Time	Repeat	First Time	Repeat
Semester 1	9	–	22	12	23	48	29	68	20	109	15	130	18	143
Semester 2	12	2	30	19	33	52	34	82	23	123	21	141	17	163
Third Semester	–	–	–	66	1	111	–	181	–	206	–	243.	91	169
Total	21	2	52	92	57	211	63	331	43	438	36	514	126	475

Data from the PLANNING DIVISION STOU – Course Names STOU : pp. 2 – 3 April, 1988

REMARKS 1. First time means courses that have never been opened before.
2. Repeat means courses that have been opened before in the previous semesters.

TABLE 5: Numbers of New Students by Academic Years and Schools

Schools	Academic Year						
	1980 – 1981	1982	1983	1984	1985	1986	1987
Liberal Arts	–	–	–	–	861	519	813
Educational Studies	75,334	10,328	12,063	20,421	15,966	9,343	7,614
Management Science	6,805	16,225	10,864	23,351	25,024	27,515	16,350
Law	–	29,827	12,549	18,589	16,053	12,171	9,966
Health Science	–	3,985	2,061	4,401	4,359	4,444	4,647
Economics	–	1,553	1,932	2,786	1,962	1,425	1,140
Home Economics	–	2,287	2,353	3,006	4,045	2,830	2,090
Political Science	–	–	3,731	4,688	4,383	3,695	2,834
Agricultural Extension and Cooperatives	–	5,356	1,896	3,006	3,091	2,248	1,900
Communication Arts	–	–	–	4,102	5,721	4,669	4,200
Total	82,139	69,561	47,449	84,350	81,471	62,859	51,554

3.3 New Students

STOU admitted its first students in the second semester of 1980. Hence, these students attended over two calendar years : 1980 – 1981. Only two schools were open at this time : the School of Educational Studies and the School of Management Science with a total of 82,139 persons applying. However, in the following two years, 1982 – 3, despite an increase in the number of Schools, the total of new applicants declined (See Table 5), the main reason being a lack of confidence by the general public as to the possibility of getting a Bachelor degree by distance education. As a result of producing the first graduates in 1982, there was an increase in the number of applicants until 1984 after which enrollment declined, the poor economy being a factor. Another factor was that some Schools (for example the School of Educational Studies and Agricultural Extension and Cooperatives) accepted only employed persons, many of whom already had degrees, thus lessening demand. At the same time, other Schools accepting new secondary school graduates also had lower than expected enrollments, unfamiliarily with the distance education system being the main cause.

3.3.1 New Students by Profession

Most New STOU Students (see Table 6) are government employees, comprising 84% of the total in academic year 1980 – 1. The majority were teachers who were the largest group in the first year of STOU's operation. These have shown a steady drop but still from the largest group of the University's students. The next largest group is privately employed, with an increase from 6% in 1980 to 20% in 1987. Unemployed students have also increased since 1983 from 9% to 13% in 1987.

3.3.2 New Students by Region Sex and Age

Annual enrollments (see Table 7) reflect the population of each region. Thus in the first year the Northeast, with one third of the total population, had the highest percentage of enrollment with about 28% of the total. They were followed in order by students from the Central Region, the North, the South and Bangkok. In the following years, students from Bangkok showed an increase, reaching their highest percentage in 1986, followed by enrollment from the Northeast, Central Region the North and the South in that order.

If looked at by sex (see Table 8), enrollment in 1980, 1983 and 1984 showed a slightly higher percentage of males. But in 1982 male enrollment was twice that of female, while in 1985 and 1986 females make up a slightly higher percentage. For 1987, enrollment was almost equal.

Enrollment by age (see Table 9) shows the majority are under 30 with an average age of about 30 during 1980 – 2. Since 1983 the average age has dropped to about 27 years.

TABLE 6: New Students by Profession

Profession		1980 – 1981	1982	1983	1984	1985	1986	1987
Government Employees								
	number	68,990	48,457	29,739	46,978	42,218	29,205	24,278
	%	83.99	69.66	59.4	55.2	50.6	46.46	48.74
State Enterprises								
	number	942	5,457	2,953	4,787	5,788	3,406	2,773
	%	1.15	7.84	5.9	5.6	7.0	5.42	2.57
Private Firms	number	4,537	9,659	7,069	12,961	14,348	10,914	9,825
	%	5.52	13.89	14.1	15.2	17.2	17.36	19.72
Self-Employed	number	275	1,438	2,183	3,463	3,333	2,870	2,601
	%	0.33	2.07	4.4	4.1	4.0	4.57	5.22
Agriculture	number	43	89	567	924	1,598	1,155	978
	%	0.05	0.13	1.1	1.1	1.9	1.84	1.96
Part-time	number	2,015	–	–	–	1,697	1,715	1,067
	%	2.45	–	–	–	2.0	2.73	2.14
Others	number	51	932	1,621	4,949	914	805	393
	%	0.06	1.34	3.2	5.8	1.1	1.28	0.79
Unemployed	number	–	–	4,260	8,803	9,698	9,242	6,598
	%	–	–	8.5	10.4	11.6	14.70	13.25
Unspecified	number	5,286	3,529	1,720	2,176	3,828	3,547	1,302
	%	6.44	5.09	3.43	2.56	4.59	5.64	2.61
Total	number	82,139	69,561	50,112	–	83,422	62,859	49,815
	%	100.00	100.00	100.00	–	100.00	100.00	100.00

TABLE 7: New Admissions by Region

Region		Academic Year						
		1980 – 1981	1982	1983	1984	1985	1986	1987
Bangkok	number	9,362	17,136	10,573	19,987	20,755	17,656	13,970
	%	11.40	24.63	21.10	23.50	24.88	28.09	28.04
Central Region	number	7,730	5,403	4,349	6,680	6,704	5,561	4,676
	%	9.41	7.77	8.68	7.86	8.04	8.84	9.39
East	number	4,681	4,540	3,306	5,184	5,642	4,526	3,565
	%	5.70	6.53	6.60	6.10	6.76	7.20	7.16
Northeast	number	22,900	14,976	11,645	21,078	20,226	13,161	10,646
	%	27.88	21.53	23.24	24.78	24.24	20.94	21.37
North	number	15,105	12,187	9,070	14,867	13,665	9,994	7,522
	%	18.39	17.52	18.10	17.48	16.38	15.90	15.10
West	number	7,286	5,181	4,117	5,822	5,528	4,520	3,456
	%	8.87	7.45	8.22	6.85	6.63	7.19	6.94
South	number	15,075	10,138	7,052	11,423	10,902	7,441	5,980
	%	18.35	14.57	14.07	13.43	13.07	11.84	12.00
Total		82,139	69,561	50,112	85,041	83,422	62,859	49,815

TABLE 8: New Admissions By Sex

Sex	Academic Year						
	1980 - 1981	1982	1983	1984	1985	1986	1987
Male	39,089	45,809	26,841	26,841	43,024	30,213	24,719
Female	37,880	22,314	21,353	21,448	41,532	31,764	24,738
% Male	50.79	65.85	53.6	50.6	51.00	48.5	49.6
% Female	49.21	32.08	42.6	48.7	49.00	50.5	49.7

TABLE 9: New Admissions by Age

Age		Academic Year						
		1980 - 1981	1982	1983	1984	1985	1986	1987
Under 21	Number	23,791	19,450	22,184	5,719	42,176	33,705	25,890
21 - 25	%	28.96	27.96	44.27	6.73	50.56	53.05	51.97
26 - 30	Total	27,195	19,963	12,292	10,249	20,718	14,595	12,275
	%	33.11	28.70	24.53	12.05	24.83	23.22	24.64
31 - 35	Total	12,358	13,982	6,573	7,163	9,626	6,912	5,941
	%	15.05	20.10	13.12	8.42	11.54	11.00	11.93
36 - 40	Total	6,946	8,540	4,051	4,421	5,050	3,367	2,963
	%	8.46	12.28	8.08	5.20	6.05	5.36	5.95
41 - 50	Total	4,674	4,972	3,090	3,020	3,431	2,196	194
	%	5.69	7.15	6.17	3.55	4.11	3.49	3.90
51 - 60	Total	713	651	424	383	424	242	233
	%	0.87	0.93	0.85	0.45	0.51	0.38	0.47
61	Total	73	66	22	40	47	28	32
	%	0.09	0.09	0.04	0.05	0.06	0.04	0.06
Unspecified	Total	6,383	1,937	1,476	54,046	1,950	1,814	538
	%	7.77	2.79	2.94	63.55	2.34	2.89	1.08
	Total	82,139	69,561	50,112	85,041	83,422	62,859	49,815
	%	100	100	100	100	100	100	100
Average Age		29.46	30.27	28.15	27.37	26.9	26.5	26.8

3.4 Physical Infrastructure

To facilitate rapid progress of the University's activities after acquisition of its own campus, a programme of construction was begun.

3.4.1 The first group of buildings constructed were the printing office and storehouse owing to the fact that the printing of instructional materials required a budget of about 100 million baht per year because of the need initially to contract 40 – 50 private printing companies to carry out the work. Thus a large storehouse and moderate-sized printing office of the University for course materials requiring new techniques and strict security measures were constructed by 1986.

3.4.2 The second group consisted of three buildings : the Seminar Building extension to serve as annex for meetings; next, a building able to house 400 students at a time was built for enriching programmes before graduation; and the third building was the Lecture Theatre with a capacity of 1,000 persons equipped with multi-vision and the latest light and sound technology for seminars. This group of buildings was completed in 1988.

Within the area of the second group of buildings, beginning in 1988 another building will be constructed to serve as an office for the various schools, the Office of Academic Affairs, the Office of Continuing Education and the Research Institute as the present offices will be taken over by the Office of Documentation and Information.

3.4.3 The third group of buildings, construction beginning in 1988, include the Faculty Club for social and recreational activities.

3.4.4 Group 4 will include a building, symbolizing the University, designed in the style of Sukhothai Kingdom of 700 years of age. This will be the site for important ceremonial occasions and a Hall of Fame. Moreover, It will be the center of an educational park and University archive-storing area.

3.5 Programmes in Cooperation with Other Agencies.

Sukhothai Thammathirat Open University has cooperated with both private and public agencies in setting up courses to benefit their employees to select courses designed for special purposes. Attendance at these programmes can be seen on Table 10.

TABLE 10: Students and Persons Attending Cooperative Programme Courses

Cooperative Programme Courses	Academic Year				
	1983	1984	1985	1986	1987
General Administration	299	488	50	9	47
Basic Home Economics	458	108	219	86	56
Local Administration	2,037	1,525	186	263	251
Special Courses for Bangkok Bank Employees	–	27	18	7	–
Certificate in Land and Property Law	2,364	203	232	150	188
Special Courses for Bank of Agricultural and Cooperatives	–	–	1,651	–	–
Training for Elementary School Administrators	–	–	2,937	491	1,588

3.6 Continuing Education

In addition, the University has a programme of Continuing Education for the general public, enabling people to choose from a variety of courses and taking examinations along with ordinary students. A University Certificate of Achievement is awarded to those who pass.

The first programmes began in 1980 and in the following three years one course per year was held. Beginning in 1983, two courses per year were held. Details of students attending can be seen from Table 11.

TABLE 11: Total of New Admissions to the Continuing Education Programme.

Academic Year	1980	1981	1982	1983	1984	1985	1986	1987
Total admissions	1,213	648	596	2,940	2,275	2,045	1,876	1,098

Note: For 1987 data for first semester only

Source: Documents from the conference on new admissions

3.7 Index of Improvements in the Quality of Education

3.7.1 Personnel Improvement.
The University set up a fund on the 200 th Anniversary of Rattanakosin (Bangkok Bicentennial) for scholarships in education, research activities and other academic areas for personnel of the University. The fund totals about 50 million baht. (approx $US 2 m.)

3.7.2 Improvement in the Quality of Education
For this purpose, the University set up funds for various activities of STOU, such as 32,182,000 baht ($US 1.28 m.) for 700 years of Thai alphabet to be used for costs of materials, printings, audio-visual media and library facilities, 30 million baht ($US 1.2 m.) for improving distance education media, the most important part of which is training in the use of computers as teaching aids (VITAL), the Kittimethi Fund, totalling 30 million baht, for remuneration and expenses of experts in various fields or from the schools selected by the University to work outside their normal duties.

3.7.3 Acceptance of Graduates
From research by Maetee Piyakhun concerning "A Follow-up Study of the Graduates of Sukhothai Thammathirat Open University, the School of Educational Studies, Academic Year 1982", it was found that the curriculum, subject content and areas of concentration that the graduates studied to be beneficial in the performance of their work. Dr. Preecha Kampirapakorn and others evaluated the occupational benefits received by graduates of each STOU programme and found that members of the sample groups who are more senior in years and who have had more work experience stated that the benefits they gained by studying under the distance learning system were close to the benefits expected. Certificate graduates of the Certificate in Local Administration Programme were of the opinion that the actual benefits received were greater than the benefits expected in every area. Work colleagues of the Certificate graduates were of the opinion that the certificate graduates in every area were considered for promotion after completing their studies. This view corresponds with the view of the certificate graduates' supervisors. It was also found that after completing their studies, certificate graduates underwent several changes in their positions of employment and their employment responsibilities.

The above data reflect the acceptance of the quality of the distance education system which Sukhothai Thammathirat Open University has organized well.

IV EDUCATIONAL PROCESS

1. Course Development

1.1 Model of Preparation and Design

The basic element in course design at Sukhothai Thammathirat Open University is integration, of which the essential element is the block system, which groups courses into inter and multi-disciplinary formats. This enables students to assimilate and apply knowlege gained and study by themselves more easily.

Sukhothai Thammathirat Open University has one standard for all course blocks i.e. 6 credits for the semester system. Each block is divided into 15 units. This system enables students to concentrate on the subjects they are studying rather than having to scatter their time among a mixture of unrelated courses. It enables easier standardization and upholding of quality because courses are prepared by the course team instead of a single person. This system also facilitates radio/telecasts and tutorials as well.

Each course block comprises 15 units, each of which is subdivided into 4–6 subunits. Each subunit is further divided into at least two lessons, after which are assignments and quizzes to enabling the student to evaluate himself. The course content comprises a variety of media: printed matter (texts and workbooks), radio broadcasts, television broadcasts, audio-visual material and tutorials. Students require from 12 to 18 hours of study per week per course. Supplementary activities to increase experience include practical or laboratory work which takes place in institutes or facilities assigned. Practical work, observation, attending seminars and taking part in various activities are designed to enrich the students, learning experiences.

1.2 Course Team Composition and Roles

To produce course materials, STOU uses a team approach by setting up a course team.

The course team consists of five categories of specialists: subject or content specialist (not more than 7 persons), media specialist, evaluation specialist, editor and secretary.

Course team members may be assigned additional tasks as editor or secretary. Experts from outside organizations and staff members of other universities whose academic achievements are outstanding are invited to be course team members and co-writers. STOU organizes an intensive workshop for the course producers before they start writing course materials.

The course team has several major functions: considering improvements in the overall objectives of each course, structuring the course content, assigning writers and co-writers and submitting the material to the Academic Senate for approval, arranging teaching plans, concepts, objectives, contents, activities, exercises and evaluation during and following studying. In addition, they consider the suitability and effectiveness of various audio-visual media supplementary to the texts, such as radio and television programmes, video and cassette tapes. Following completion of the course materials, the team is also responsible for tutorials and creating and determining test items for their courses.

1.3 Educational Philosophy

As an open university, STOU holds to the principle of life-long education to improve the quality of life of the general public, using the distance education system with various media to achieve this, enabling people to learn without having to attend classes.

1.4 Media Selection and Their Use

1.4.1 Media Selection

STOU has chosen to use mixed-media to impart instruction. The selection and development of instructional media is based on the following criteria: availability, acceptability, accessibility, validity, and economics. To help students study on their own, STOU uses the following media to impart instruction:

a) *Main Medium:* Print is the main medium used in learning materials. The format of the printed texts used by STOU is the programmed textbook, which is adapted from programmed instruction. The production of this type of printed material aims at making the student an active learner. Thus materials of an interactive nature must be produced. The students must complete various activities or exercises as part of learning the content of each unit, and they will receive periodic feedback to indicate the extent of the progress in their studies by doing pre-test and post-test. Thus they experience a series of successes in their self-study, and this encourages them to progress further in their quest for knowledge.

b) *Supplementary Media:* Electronic media (such as radio, television, audiocassettes, videotapes) and tutorial sessions at various local and regional study centers throughout the country are used as the supplementary media. In addition, supplementary texts are used as well as audio-visual media such as photos, 3 – dimensional media, diagrams, slides, movies and video which can be found in STOU corners at provincial libraries.

1.4.2 Guidelines in the Use of Educational Media.

a) *Programmed Texts:* Materials used in teaching give course description, course objectives, course units, a teaching plan and content in the form of programmed texts and assignments.

b) *Workbooks:* Workbooks are used as the tools for students to evaluate themselves during and after studying, note important points and complete assignments as required.

c) *Audio Tapes:* Audio tapes are used as follows:

- orientation or course description giving a broad view of the course.
- prepare students for each unit and gives the important points of the unit.
- summarize each course content.

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- give keys to exercises.
- used in demonstrations and laboratory work by explanation for students to carry out work themselves.
- used in explanation of charts, diagrams, maps, graphs, etc. or in the form of "audiovision or radiovision"
- show the ideas of experts by recordings to supplement the students understanding.

d) *Radio the Telecasts for the Teaching/Learning Process:* The University has stipulated radio and telecasts for studying as follows:

Model 1 A teaching tool which can be used in many ways: for example
- a self-contained method using both sound and pictures to benefit studying
- as a teaching component with other media
- as a teaching medium for group study.

The important factor here is that instructors must delineate the teaching plan themselves and find a role for radio/telecasts in the teaching-learning process.

Model 2 For use as a tool in the work place by using the camera to photograph things invisible to the human eyes and by speeding up or slowing down action to clarify movement.

Model 3 Used together with other photographic materials such as slides, filmstrips, movies, tables and graphs without having to over-use other media or equipment as a basic step towards future education where equipment is used as little as possible.

Model 4 As a way of recording important events or activities, royal ceremonies or cultural events and incorporated in lessons where desired.

Model 5 As a tool for self-study by keeping tapes on file in libraries as reference materials.

Model 6 As direct teaching media for classroom use.

Model 7 Used as micro-and macro in teaching by using one student as an example for the group to point out problems and ways of solving them

Model 8 As a tool for open education as the major or supplementary media in distance education.

Model 9 As an integral part of the course both within at outside the system. By using this, savings, efficiency and convenience are improved to the highest degree.

Model 10 Used in training programmes as a tool for demonstration of teaching methodology, case studies, new techniques, etc. By viewing programmes in advance, instructors can find ways to improve their techniques.

e) *Videotape:* At Sukhothai Thammathirat Open University videotape plays an important role in providing service to its students who are spread throughout the country. Videotapes are used in the following ways:

- To copy programmes and send them to all Provincial Study Centers in order to serve interested students at the Centers.
- To record special programmes 1–2 hours in length to supplement the regular course content.
- To incorporate videotapes within the course as an addition to the media already used by students.
- To be used in tutorials in line of regular tutorials.
- To copy movies for education purposes by STOU or purchased for students use.
- To record important events of the University and nation as a record of historical importance for future reference.

f) *Tutorial Package:* The tutorial package plays a specific role as each is an integral part of each course. Materials include transparencies for projecting, slides, tapes, graphs, etc. as well as workbooks specifically made for the tutorial. Use of these packages ensures maintaining standards among tutors with different backgrounds and experience, and improves the effectiveness of tutorials for student support.

g) *Tutorial Sessions:* Tutorials are an important educational form of human interaction to assist students by

- Explaining, expanding and facilitating comprehension of difficult material and ideas.
- Answering questions concerning the course.
- Summarizing the important points.
- Explaining methods of doing assignments.
- Explaining and counselling concerning practical work in line with course objectives.

1.5 Course Writing and Design (Process)

When the University selects a School to prepare a new course, the School Committee assigns a faculty member to be chairman of the course team. The chairman invites qualified persons to join the team and submits their names to the School Committee for consideration. If approved, the list is submitted to the Academic Senate for final approval.

When set up, the chairman of the course team convenes a meeting to prepare the work and assign duties as follows:

1.5.1 Planning Stages

- The course team jointly prepares the course description and objectives specified in the course outline.
- It then classifies understanding of the content by dividing it into 15 units and determining the order of lessons. The School Committee must be notified of any changes.
- It allocates units or modules for writing. Course writers are of two types: a producer, a member responsible for one or more units and co-writers who are not members of the team but are selected on the basis of ability, experience and expertise in making written material easily understood. The completed team list is sent to the School Committee for consideration. If necessary it will be sent to the Academic Senate and the University for approval.

- It considers unit and lesson titles and headings. The writer submits the title to the team to delineate the scope of each part and its objectives.
- It considers lesson plans for each unit.
- It considers the contents of audio tapes, radio and television broadcasts. The writer must specify the major points so the technicians at the Office of Technology can arrange a plan and coordinate the work, which may be done before the course content itself is completed.
- It considers the suitability of the audio tape, radio and television lessons prior to final production.

1.5.2 Production Stage

Upon completion of the lesson plan, the course team allows time for preparation of each unit and its associated media and submitting the work, with the following steps:

- Detailed consideration of content from the viewpoint of correctness, ease or difficulty, and comprehension.
- Consideration of assignments and the guideline of the questions and answers of pre- and post-tests with help from educational evaluators.
- Consideration of visual aids, both written and photographic by technicians and producers, stipulated from the viewpoints of length (amount), type, and detail.
- Consideration of the suitability of video tapes, radio and television programmes.
- Comprehensive meeting by the University of all participants concerned for an intensive review of course content before printing.

1.5.3 Steps in Course Evaluation

The course team plays a part in testing the efficiency of their work along with the System Management and Educational Media Research Section and consideration of the test results and researching the efficiency of the visual aids.

1.6 Student Assessment Procedures

1.6.1 Setting up and Evaluating Results of Education

The University has divided course content into two types: practical and theoretical. The following grading system has been adopted for practical coursework and final examinations.

Theoretical coursework: Not more than 20% for practical work and not less than 80% for written examinations of the total mark.

Practical coursework: Emphasis is given to practical work along with written examinations. The percentage assigned to each to be determined by the Schools depending on the course.

1.6.2 Activities Prior to Graduation

a) *Activities to Enrich Professional Experience.* Certain Schools require these activities as integral parts of the course. Examples are the School of Educational Studies' activities in the education area and the School of Health Scienoe's activities in Public Health and Nursing. Students must register for these activities during the final semester before graduation. These courses require students to pass examinations (40%) and take part in the above activities (60%)

b) *Intensive Workshop to Enrich Graduate Experience.* Courses of some Schools do not require participation in the above activities, such as the Schools of Management Science, and Law. Students must take part in an intensive workshop to enrich graduate experience during the final semester, before graduation. No grade is given for this training.

c) *Intensive Training for Specific Courses.* The University has authorized special training for students studying statistics, educational research and evaluation and economic statistics which are required courses. Failure may result in students being forced to drop from the University. In cases where the subject matter is too difficult for self-study, especially mathematic and statistics subjects, the University will require the student (who has no other courses remaining and has registered at least twice and failed) to attend an intensive training programme and take the examination at the place of training, so as to notify him or her of the grade.

This is only temporary measure until the course can be made easier to understand.

1.6.3 Graduation

Students graduate with a Bachelor Degree or Certificate when they have successfully fulfilled the programme requirements and those of their respective schools: for Bachelor Degrees (4 years) a minimum of 22 courses, Continuing Education Bachelor Degrees (3 years) 18 courses, Continuing education Bachelor Degree (2 years) 12 courses and for a certificate (1 year) 4 courses.

1.6.4 Responsibility for Standards

Academic standards are the responsibility of academics who serve as members of course-production teams. Outstanding academics and specialists from outside institutions as well as acknowledged leaders from other agencies are invited to participate in the development of the materials. The excellence which exists in society is thereby utilized to the fullest extent. These groups of outstanding academics, specialists, acknowledged leaders and STOU's staff have served as planners, curriculum developers, part-time course team members, materials producers, and tutors at supplemental instructional sessions. They also serve as external examiners as well, for in addition to producing course materials, they also write examination questions.

1.7 Developmental Changes

The University realized the importance of development in educational media for constant upgrading of efficiency and academic advancement as follows:

1.7.1 Instructional Texts

The schools assign 3–5 persons to evaluate texts with approval from the Academic Senate with the following qualifications:

- a minimum of a Master's Degree or equivalent in the respective fields of the texts to be evaluated.
- at least 5 years experience in teaching or employment or research in the fields relevant to the texts.
- persons with outstanding academic experience or leaders in professions with academic connections and recognized in their respective fields related to the texts to be evaluated.
- able to spare time sufficient for comprehensive evaluation within the time frame set by the University.

In general, texts are evaluated every four years to ensure the highest standards of quality and up-to-date material. However, if any course is seen to need improvement before the four year period it can be done.

1.7.2 Radio and Television Programmes and Audio Tapes

Whenever improvements in instructional texts are made, supplementary media must also be improved. The University will set up a committee to improve the radio and television programmes as well as the audio tapes in line with improvements in the core medium – the texts.

Moreover, the University has a programme to improve the media system of distance teaching by applying new technology to serve the greatest number of people. This entails 4 programmes as follows:

a) An increase in the time allotted for TV broadcasts for better programmes.

b) Using videotapes to disseminate education in the curricula of elementary, secondary and vocational schools as well as at the university level by working in cooperation with video centers throughout the country to allow interested persons to rent videotapes. This programme may be expanded to serve as a source for the production of videotapes nationally.

c) Using electronic media such as computers for educational purposes through cooperation with foreign universities.

d) Using satellites and the television networks as educational aids, such as in tutorials, etc.

2. The Teaching/Learning Process

2.1 Who teaches?

The teaching staff is composed of instructors both from within and outside of the University, i.e. from other education institutions and agencies, both central and regional. Instructors must be qualified and experienced in their fields and must receive prior approval from the Academic Senate.

Students are assessed by examinations which are graded by those responsible for them or else by instructors from the staff with expertise in that particular field. In any case prior approval from the Academic Senate is required.

2.2 Elements of Independent Study.

In the distance learning system of education the students study independently in lines of regular classroom study. To facilitate efficient self-study, the University has prepared the following services with emphasis on knowledge, content and experience:

- Educational material sent by post : texts and tapes.
- Education through radio broadcasts. Each course uses approximately 15–17 broadcasts of 20 minutes each, with the content designed to clarify the texts used.
- Education through television broadcasts. Each course uses 3 broadcasts of 30 minutes each.
- Education using audio-visual aids. The major components include audio tapes for each course, audio tapes for tutorial purposes, video tapes for tutorial purposes, film (prepared by the office of Educational Services for the students of the University) tutorial kits (which use audio-visual media to assist the tutorial professor), slides, tapes and other media aimed also at assisting the tutorial professor as well as maintaining the standards of teaching and home experimental kits.
- Additional study through textbooks. Texts prepared by the University are kept at the "STOU Corners" at all provincial libraries.

2.3 Elements of Interaction

There are several ways to encourage interaction between students and staff and among the students themselves as follows:

a) Orientation programmes for new students to familiarize themselves with the elements of distance education.

b) Organizing activities outside the regular curriculum called "Student Clubs" to serve as centers for students to help each other with problems concerning their studies. Each "club" has a group of professors as advisors and is expected to take part in meetings or other activities.

c) Tutorials and academic services. Tutorials are organized to provide face to face interaction with students at educational service centers throughout the country. Instructors holding tutorials act as facilitators of knowledge and understanding of the materials and answer any questions and problems concerning the courses. Tutorials are held on Saturday and Sunday. Some courses require two sessions while others require three each lasting five hours. Moreover, before holding a tutorial, a question and answer session is held and advice is given concerning academic matters. This begins 30 minutes before the tutorial itself.

d) Counselling on education and careers. Counselling service for students prepares them for studying at the University. They are advised on how to study efficiently, given information on studying various subjects, informed about continuing studies at other institutions of higher education and generally assisted in solving individual problems.

e) Organizing activities, such as activities for professional experience, intensive training to increase graduate experience and practical work-related activities.

3. Delivery of Course Materials

3.1 Delivery System

STOU students, who are spread throughout the country, receive all printed materials by mail. The major printed materials which are mailed to students each semester, are registration materials, examination handbooks, broadcasting schedules, newsletters, and instructional materials.

Other materials such as application forms and information booklets are also sent by mail. This poses a problem to postal services. To solve the problem, the Office of Educational Services which is in charge of the delivery system, works closely with the Communications Authority of Thailand. Successful operation of the delivery system requires planning, communication, co-ordination, and co-operation.

Quantities of materials mailed to students in 1985 are shown in Table 12.

3.2 Broadcasting (Radio/TV.)

STOU broadcasts radio and television programmes daily. Over 150 radio programmes of 20 minutes' duration are broadcast weekly, totalling approximately 7,800 radio programmes per year. For the television programmes, the university has permission from the Government to broadcast three programmes daily from 6.30–8.00 p.m. About 1,100 television programmes are broadcast per year.

Broadcast times have been changed beginning with the first semester of the academic year 1988.

TABLE 12: Quantities of Materials Mailed to Students, 1985

Types of Materials	1st Semester	2nd Semester
1. Registration materials	157,945	180,164 (copies)
2. Examination handbooks	293,441	257,462 (copies)
3. Broadcasting schedules	213,488	184,770 (copies)
4. Newsletters	1,116,051	1,067,252 (copies)
5. Instructional materials	366,975	280,564 (copies)

TABLE 13: Radio and Television Broadcasts

Type of Programme	Duration of Programme	Number of Broadcasts
Radio	20 minutes	150 programmes per week (7,800 per year)
Television	30 minutes	3 programmes per day (1,100 per year)

The University has been granted permission to broadcast 688 programmes per academic term on TV Channel 11 and out of these, 432 network broadcasts per semester (16 weeks) will be shown.

The new broadcast times are as follow:

1. 5.30–6.00 a.m.	Broadcasts of courses concerning agriculture and cooperatives.
2. 6.00–7.30 p.m.	Broadcasts of courses or programmes that have a large audience, such as basic courses in liberal arts, management science, law, communication arts, some broadcasts of courses in education.
3. 11.15–11.45 p.m.	Broadcasts of courses in health science.

4. Other times are used to broadcast programmes of courses in economics, political science, home economics, and some courses in education and law.

3.3 General Assessment of Effectiveness of Distribution

3.3.1 Methods for Materials and Broadcasting

Owing to the large amount of educational material that is distributed by the postal system, problems have occurred. Therefore a committee to coordinate work between STOU and the Communications Authority of Thailand has been set up. This committee meets from time to time to consider methods for solving problems and obstacles as they occur.

3.3.2 Assessment of Radio and Television Broadcasts

Researches by the Management System and Educational Media Research Section, Office of Educational Technology and by individuals have found that radio and television broadcasts of educational programmes are of good quality although there is a lack of uniformity in technique and content as well as irregular programme reception.

Student Support (Academic)

4.1 Tutoring and Counselling

Tutoring is one of the academic services provided by the University for its students on Saturdays and Sundays at Education service Centers all over the country. The tutors are members of the faculty or qualified individuals from outside the University who are experienced in their respective fields. In addition, Regional Service Centers also assist in recruiting tutors.

In order to ensure maximum effectiveness tutoring and counselling go hand in hand. Therefore, instructors from the University Staff who travel to give tutorials, also give counselling for about 30 minutes prior to the tutorial. Tutorials are given either two or three times, 5 hours per time.

4.2 Practical Work.

Certain courses require practical work or on-the-job training. These courses are in the Schools of Communication Arts, Health Science and Agricultural Extension and Cooperatives.

The University requests cooperation from relevant government agencies with duties identical to those stipulated in the course description requiring specialized training and study and in getting up Special Study Centers at offices of the agencies concerned such as Regional Agricultural Offices and hospitals etc.

Special Study Centers play a role in education, giving advice concerning academic matters, increasing knowledge and understanding and experience, and offering practical experience in the field to students in the schools concerned.

4.3 Residential and other Personal Contact Programmes

The University requires students to take part in the following activities prior to graduation:

4.3.1 Professional experience workshop programmes are an intergral part of some courses to enable students to gain practical experience in their respective field of study. Schools requiring participation are the Schools of Educational Studies and Health Science.

4.3.2 Intensive Workshop programmes for the enrichment of graduates experience. Schools that do not have professional experience workshop programmes require students to take intensive workshop programmes for the enrichment of their knowledge, morals, professional ethics and for better relationship among the students themselves and their instructors.

4.3.3 Practical training or fieldwork is required by the Schools of Communication Arts, Health Science and Agricultural Extension and Cooperatives. In the future, every school will hold professional experience workshop programmes and plans call for expanding the programmes from five days at present to seven days.

4.4 Self-Help Groups

Students have cooperated in setting up student clubs for mutual assistance in academic matters. The function of these "Student Clubs" is to expand tutorial courses which the University would like to set up. Aside from their function as self-help groups, the student clubs support various programmes and activities of the University. These groups have been set up in districts and provinces in every part of the country.

4.5 Visits by Staff to Local Centers.

Visits by the staff to the various provincial educational service centers are undertaken by the faculty for a variety of purposes, such as orientation for new students, tutorials, coordinating examinations, participating in student clubs, etc.

4.6 Library Services.

The University has received cooperation from the Non-formal Education Department in setting aside an area of the provincial public libraries to serve the students of STOU. These are called "STOU Corners" and offer various types of educational material such as textbooks, reference books and cassette tapes.

The University plans to set up ten area resource centers which will be the responsibilities of the Office of Documentation and Information and will be spread throughout the country. These centers will serve as sources of education media with emphasis on audio-visual media.

4.7 Study Centers

To serve the needs of students scattered throughout the country, the University has set-up study centers with the cooperation of educational institutes both in Bangkok and up country, as well as other concerned government agencies. These centers are classified as 5 types:

4.7.1 Regional Study Centers. There are 11 Regional Study Centers which offer tutorials by recruiting local personnel, conduct examinations, advise and counsel students in academic matters, and provide general information concerning the University to the community at large.

4.7.2 Provincial Study Centers. There are 66 provincial study centers which arrange sites for University activities and programmes, such as orientations, tutorials, examinations, counselling and other academically-related activities deemed of benefit to the students as well as serving as centers for public relations and information concerning the University at the local level, including serving as a liaison between the University and students in the event that they are unable to contact the University directly.

4.7.3 Special Study Centers. These Centers are set up depending on the needs and wishes of the schools. They provide educational services, counselling, and supervise practical work such as laboratory and fieldwork for the students in the Schools concerned. In addition, they are recruitment centers for finding qualified personnel to hold tutorials. The School of Agricultural Extension and Cooperatives has 7 Centers and the School of Health Science has 22.

4.7.4 STOU Corners. A total of 75 STOU corners have been set up to serve as STOU libraries in each provincial library.

4.7.5 Area Resource Centers. At present an Area Resource Center is being constructed in Nakorn Srithummarat to serve as the southern STOU area resource center.

At present the University has set up 182 centers of the above five types in all parts of the country as show in Table 14 which classifies the centers by type and locality.

TABLE 14: Regional, Local and Special Study Centers

Regions	Regional Centers	Local Study Centers	Library Corners	Agricultural Extension and Cooperative Centers	Special Study Centers	
					Health Science Centers	Area Resource Center
Bangkok	3	–	3	1	5	–
Central	1	9	9	1	3	–
Northern	2	15	16	1	5	–
North Eastern	2	16	17	1	4	–
Eastern	1	7	8	1	2	–
Western	1	7	8	1	2	–
Southern	2	12	14	1	3	1
Total	12	66	75	7	22	1

4.8 Responding to Student Enquiries

The University provides counselling and advice to students with problems through the following units:

- The Office of Registration Records and Evaluation offers counselling concerning admission, registration, adding or dropping courses, changing of given and/or surnames, changing schools, majors and addresses, providing transcripts, etc.
- The Office of Educational Services handles matters concerning instructional materials and tutorials.
- The Office of Educational Technology handles inquiries concerning radio and television broadcasts and course tapes.
- The Office Academic Affairs is concerned with matters associated with meetings to prepare courses, professional experience, intensive training programmes to increase graduates' experience and special course intensive training programmes, as well as notification of these activities.
- The Schools handle problems concerning text content and various educational media.

The students are told how to get in touch with the unit concerning their problems by the STOU Student Handbook.

4.9 Assignments

Assignments take a variety of forms as follows:

a) Worksheets. Because of the individual study system students do not have the opportunity of evaluation by instructors but evaluate themselves by checking their answer in their workbooks.

b) Assignments which are an integral part of the course must be sent in to the University by the students for evaluation. Assignments in which students must submit their workbooks with texts are either:

   (i) sent by post (for example the course for Professional Teaching Experience of the School of Educational Studies) or

   (ii) handed in on the dates of the students' practical skills enhancement (for example, courses of the School of Communication Arts: Media Production for Public Relations, Creative Advertising, Newspaper Production, Radio Programme Production, Television Programme Production and, Advanced Film Production, as well as courses of the School of Health Science: Selected Case Studies on Maternal and Child Nursing, Selected Case Studies on Community Health Nursing, Selected Case Studies on Emergency and Critical Nursing and Selected Case Studies on Rehabilitation Nursing) or

(iii) handed in on the dates of professional experience workshops, for example the course of the School of Health Science on Professional Experiences in Nursing, or

(iv) handed in by students upon attending workshops (for example, the School of Educational Studies' professional enrichment workshops and Educational administration enrichment workshops).

c) Assignments considered integral elements of courses leading to a degree include special problem-solving at the School of Agricultural Extension and Cooperatives. Students must send one copy of their report on special problem-solving by post to the School not less than 20 days prior to attending intensive graduate experience enrichment training programmes, and another copy must be handed in on the first day of the programme; this copy will be returned to the student upon completion of assessment.

4.9 Research and Evaluation of Support Systems

4.9.1 Research and evaluation of supplementary media in the distance education system of Sukhothai Thammathirat Open University by Educational Research and System Division, Office of Educational Technology, STOU and others are:

- Opinion of Graduates in Education Toward Supplementary Media of Distance Learning System of Sukhothai Thammathirat Open University 1985
- Report of Research on the Efficiency of Radio/Television Educational Media 1981
- Report of Research on the Efficiency of Radio Broadcast Media, 1981
- Report of Research on the Efficiency of Texts, 1981
- Report of Research on Evaluation of the Quality of Texts and Workbooks, 1983
- Report on Follow-up of Use Made of Tutorials at Regional Education Service Centers, 1981

4.9.2 Summary of Research and Evaluation of Various Supplementary Media

a) Educational Telecast
  - regularly watched, if not, due to lack of free time because of work, activities etc.
  - broadcasts should be 30 minutes long between 6 to 8 p.m.
  - formats most liked were demonstrations with explanation and multi-mixture presentations of contents.
  - programme contents should include a summary of the main points.
  - quality of broadcasts and overall good-picture reception was the biggest problem.

b) Educational Radio Supplementary broadcasts
  - only occasionally listened to with main reason being lack of free time.
  - programmes should be 20 minutes long from 6–8 p.m.
  - programme format-students desire discussions, explanations, literature and plays in that order.
  - broadcast quality and content are generally evaluated as good. Problems are conflicts in timing and poor reception.

c) Texts and Workbooks
  - content is in line with expectations and has good continuity. Illustrations and charts excellent. Content quality very good.
  - self-evaluation and assignments are rated very good and multiple-choice is the favored format.
  - important points should be summarized after each unit and photos accompanying lessons should be taken from actual life.
  - format is suitable
  - space for students' assignments in their workbooks is adequate.

d) Use Made of Tutorials at Educational Service Centers
  - schedule of tutorials good
  - service given by the centers and information by the tutors is of fair quality.
  - 85% of all students attend some tutorials and 40% of these attend regularly.

5. Student Support (Administrative Services)

5.1 Publicity, information services, enquiries

The University has variety of public relations and information services through media. These are:

- *STOU News*. This is a monthly publication with news of the University's progress, work and educational informaltion useful for students.
- *STOU Newsletter*. This provides information for the STOU staff and educational information from throughout the country.
- *Schedule of Educational T.V. Broadcasts*. This is a poster specifying the radio-television broadcast times of the University's programmes.
- *STOU Time*. This is a radio/television broadcast providing news of the University's activities.

5.2 Admission/Enrollment Procedures

TABLE 15: Student Support Service System

Admission and Registration System	Office of Registration. Records and Evaluation – admitting students – registration – record keeping
Production System	Office of Academic Affairs – preparing manuscripts for course teams – providing training for outside writers – organizing workshops for course writers Office of Educational Technology – producing radio programmes – producting television programmes – preparing films, audiotapes and videotapes Office of the University Press – printing textbooks and workbooks – printing examination papers
Instruction System	Office of Educational Services – organizing tutorials – coordinating study centers – providing counselling and guidance – coordinating student clubs and associations Office of Academic Affairs – organizing professional experience workshops – organizing enrichment programmes for graduates Office of Information and Documentation – sending materials to STOU corners – providing library services to students – coordinating resource centers
Examination System	Office of registration. Records and Evaluation – supervising exams – developing test instruments – organizing workshops for exam writers
Administration System	Office of the Rector – records keeping – public relations – finance – personnel – planning and development – materials and supplies

5.2.1 Applications

The University accept applicants at the beginning of the first semester of each academic year. Applicants are divided into two groups as follows:

a) The first group applies from February to April for people who meet the University's entry qualification.

b) The second group applies from about mid-May to early June and comprises persons who have just completed, secondary school (grade 12) or the equivalent and those with vocational certificates and upper-level vocational certificates

During the period February-Arpil, prospective students fill in application forms and mail them to the University. Enclosed with their applications are postal money orders for tuition fees and course materials. Those meeting admission requirements are admitted without taking any entrance examination.

5.2.2 Registration

Students register for courses following the programme stipulated by the School offering the major for which the student has registered. They may enrol in a maximum of three courses per semester. Registration is done by post.

The Ofiice of Registration Records and Evaluation is responsible for admitting students, registration, and keeping student records.

5.3 Administration of Exams

STOU organizes the final examination in every province every semester. Those who fail have a chance to take the examination again. Normally regional and local study centers serve as examination centers.

The examinations, like tutorials, are held on Saturday and Sunday. STOU staff bring the examination papers to the examination centers and staff members of local schools and colleges serve as invigilators. Since the examination are held on the same day throughout the country, STOU's examination system requires a large number of facilities and invigilators. During an examination day, about 5,000 local members are working as invigilators. This reguires a great deal of co-ordination. (see Table 16)

TABLE 16: Number of Examination Rooms and Invigilators
(First Semester 1986)

	Saturday		Sunday	
	0900 – 1200	1300 – 1500	0900 – 1200	1300 – 1500
number of Examination Rooms	2,456	2,744	3,373	3,275
number of Invigilators	4,914	5,488	6,756	6,550

The Office of Registration, Records and Evaluation will notify each student of the results of his or her examinations by post within about 30 – 45 days after the examination.

5.4 Coordination of Study Centers

Coordination of work between the University and the study centers is handled by the Office of Educational Services and the Office of Registration, Records and Evaluation. The former handles matters concerning tutorials, orientation, student club activities and information, while the latter deals with public relations concerning new students application forms and examinations.

The facilitate coordination, the University holds annual conferences with representatives from both STOU and the study centers.

For details of student support services see Table 15.

6. Research and Development

The University supports research in 4 areas:

- Insitutional research
- Research on distance education media
- Examination research and development
- Research for academic development

6.1 Institutional Research

This research programme is in the form of applied research aimed at improving University services and planning development. This programme consists of:

a) Collecting data for and information management system for data concerning students, staff, educational programmes, buildings, facilities and finances.
b) Study of future demand for new schools and branches of study and estimate of future student enrollment.
c) Analysis of University expenditures and studies of problems in carrying out various tasks.
d) Evaluative research : follow-up of various graduates by class concerning employment, effectiveness of education at the graduate level, follow-up of students receiving certificates or certificates of achievement following comparative programmes or programmes of continuing education of the University, evaluation of various programmes in line with the educational development plan of the University.
e) Research on policies and systems comprises studies of future educational trends and research to develop service formats such as the format of tutorials.

6.2 Research on Distance Education Media

Some main programmes in this research category are:

a) Basic data collection and study on the distance education media in different aspects such as production, use, distribution, and problems. This information is being use for the improvement of media production and distribution.
b) Research and development of new kinds of media on distance education that are more efficient and suited to the needs of STOU, for example, computers as aids in teaching (VITAL), broadcasting and audio-visual media.
c) Research to evaluate distance education media and its effectiveness in teaching. This involves evaluating the quality of the media (texts, radio and T.V. broadcasts, audio-visual media, video tapes) before actual use and study of use made of the various types of distance education media by students and the general public.

6.3 Examination Research and Development

To advance knowledge and skills. The results of the research will be used to improve the system of student registration and develop higher quality and more efficient examinations. The research area is as follows:

a) Research in examinations by analyzing past exams to specify guidelines and make recommendations for future examinations.

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b) Research to develop a standard for examinations by study of format and the quality of the questions posed and their compatability with the format of the examinations. The results of this research will be used to improve the quality of the University's examination.

6.4 Research for Academic Development

The University has stipulated support for long term research by assigning priority to the following programmes:

a) Research of input, process and output
b) Research for development of human resources, the major components of which are research on children and STOU Talented Student programme.
c) Research for national development, including industrial, rural and quality of life development, and research concerning laws and society.
d) Research to develop academic advancement emphasizing basic research. This includes the Sukhothai Studies programme, a study of the Sukhothai Kingdom. Programmes involving foreign cooperation are the Global Education Research Project and individual research by members of the University staff.

6.5 Sources of Financial Support for Research

These are as follows:

- funds from the government budget (government aid)
- funds from the University's revenue
- funds donated by private sources to the University.

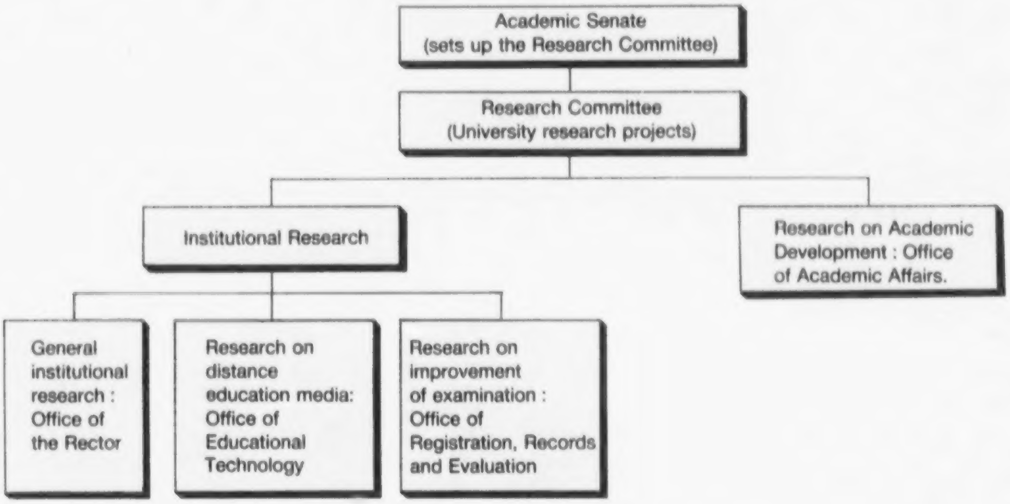
The University's revenue is the major source of financial support for research to promote academic quality as mentioned above.

6.6 Proposals and Considerations of Research Projects

Research projects involving financial support must not exceed one year's duration. In cases where a longer period is required, full details of the project must be submitted and divided into yearly increments. The University has set up a committee, for consideration of the project, with the Academic Senate responsible. The Research Committee considers all research projects of the University and is composed of a Vice Rector for Academic Affairs as Chairman, a Vice Rector for Planning as vice-chairman and not more than four members chosen by the Academic Senate. The Head of the Office for Academic Affairs is a member and secretary and a Vice Rector for Planning is a member and assistant secretary while the Head of the Research Division, Office of Academic Affairs, is also assistant secretary, The Research Committee has a term of two years. The structure of Research administration can be illustrated by the following diagram:

CHART 5

Diagram of the Research Administrative Structure of Sukhothai Thammathirat Open University


Academic Senate (sets up the Research Committee)
Research Committee (University research projects)
Institutional Research
Research on Academic Development : Office of Academic Affairs.
General institutional research : Office of the Rector
Research on distance education media: Office of Educational Technology
Research on improvement of examination : Office of Registration, Records and Evaluation

As can be seen from the diagram, the Academic Senate is responsible for all aspects of research projects, especially those requiring financial support from the University.

Units responsible for administration of University research are the Office of the Rector which handles general institutional research. Research on distance education media, and research concerning examination development are handled by the Office of Educational Technology and the Office of Registration, Records and Evaluation respectively which are the major units involved. However, faculty members interested in research may submit proposals for support from the University both in the area of institutional research and academic research.

V. COSTS

Financial Assistance from Foreign and Domestic Outside Agencies

1. Domestic assistance

In 1978 the Bangkok Land Co., Ltd. donated 30 rai of land (12 acres) valued at approximately 13,500,000 baht for constructing buildings for the University.

2. Foreign assistance

2.1 In 1980, the University received an unconditional grant from the Japanese government for construction of the Education Broadcasting Production Center, including equipment with a value of approximately 176,000,000 baht.

2.2 The Netherlands, under the Netherland Literature Programme, and the British Council under the ODM Books Presentation Programme, donated books and texts with a total value of approximately 105,000 baht.

2.3 Aid in the form of funds for research scholarships was given by the International Development Research Center (IDRC) to support research in the Education of Programmes in Terms of Occupational Benefits and the Achievement of Objectives: the Case of STOU. This grant totalled 1,200,000 baht.

Production and Development of Education Media

The most important work involved in producing and developing educational media for STOU are:

- Preparation of the original texts for instruction use.
- Production of educational media for radio broadcasting.
- Production of educational media for television broadcasting.

1. Preparation of the original texts for instruction use

In 1987, 33 courses with 15 units per course totalling 485 units were prepared. The University paid 12,000 baht per unit to the persons writing the original texts. This brought the total remuneration for 1987 for preparation of the texts to 5,940,000 baht. Remuneration for editing was evaluated at 10% of the unit fee, or 594,000 baht.

The authors of the texts came from the University faculty and also from other educational institutions. In addition, the University has hired five temporary personnel to proofread the texts. The remuneration for editing comes to 165,900 baht per year.

2. Preparation of Radio Broadcasts

Remuneration for preparation of educational broadcasts includes remuneration for preparing new courses and remuneration for improving educational broadcasts. Remuneration for preparation of new courses for the second semester of 1987, the first semester of 1988 and the second semester of 1988, totalling 371 programmes at an average of 400 baht per programme, totals 148,400 baht.

For improvement of the programmes, approximately 50 programmes were involved at 400 baht per programme totalling 20,000 baht.

Thus the total expenditure for the above work comes to 168,400 baht.

To assist in this work, 8 temporary employees are involved for an annual remuneration of 265,440 baht.

3. Preparation of Television Broadcasts.

The work involved in preparing television broadcasts includes:

3.1 For the second semester of 1987, the first semester 1988 and the second semester of 1988 the University has produced 66 new courses for television broadcasts at an average cost of 5,000 baht per programme, totalling 330,000 baht.

3.2 176 course programmes at 5,000 baht per course totalling 880,000 baht of which 50% or 440,000 baht has been budgeted for this year.

3.3 The programme "Follow Me" comprising 30 programmes at 5,000 baht per programme or 150,000 baht total.

3.4 Remuneration of preparation of 4 closed circuit broadcasts at 5,000 baht each; totalling 20,000 baht.

To assist in the preparation of radio and television programmes the University has hired 4 technicians as permanent employees at 134,475 baht per year and 24 part time employees at 802,700 baht per year.

Staffing

In 1986 the University had 1,597 permanent employees of whom 301 were permanent faculty staff and 1,256 were permanent administrative staff. In addition, the University hired part time employees on a daily basis totaling 112,147 man-hours *

Salaries and Wages of STOU Personnel

In 1986 the government allocated 48 million baht for the STOU personnel salaries and wages, and the University also paid 21 million baht from its revenues to supplement this. Approximately 65 million baht per year is paid by the University for remuneration. Thus an annual total of approximately 134 million baht is paid by STOU for salaries and remuneration.

Sources of Revenues

1. Government Aid

STOU receives approximately 25% of its annual total revenue from the government as follows:

TABLE 17: STOU Annual Revenue by Source

Budget Year	Govt'l Budget		University Revenue	
	Total (B)	%	Total (B)	%
1980	17,731,800	32.07	37,558,000	69.93
1981	46,857,900	30.76	105,840,000	69.24
1982	55,037,800	24.57	168,931,000	75.43
1983	69,647,800	21.10	260,400,000	78.90
1984	89,573,700	22.72	304,600,000	77.28
1985	68,138,600	18.32	303,808,460	81.60

Source: Wichit Srisa-an and Tong-in Wongsothorn "The Management and Economics of Distance Education: The Case of Sukhothai Thammathirat Open University."

2. University Revenue

This is an important source of revenue. The major part of this comes from tuition fees, including educational material, and other sources. The amount fluctuates depending on the number of students registering each year.

The trend had been one of annual increase until 1987 which saw a reduction in revenue, from approximately 37 million baht in 1980 to 347 million baht in 1986 followed by a decline to 295 million baht in 1987 as shown below.

TABLE 18: STOU Revenue by Source

Source	1986	1987
A. Revenue for Ed'l Upgrading		
– admission fees	46,052,300	40,151,150
– university improvement fees	45,780,000	38,327,250
– tuition	137,484,000	113,156,400
– educational materials	115,758,700	100,047,600
B. Other Sources	1,757,650	3,299,200
Total	346,832,650	294,981,600

Source: Figures from the Office of Planning, STOU.

*** Additional Remarks Regarding Staffing**

The University staff that are members of the faculty or academics are in 10 schools: Liberal Arts, Educational Studies, Management Science, Home Economics, Law, Health Science, Economics, Agricultural Extension and Cooperatives, Political Science and Communication Arts.

The administrative and clerical staff are in the Office of Registration, Records and Evaluation; Office of Educational Technology; Office of Educational Services, Office of Academic Affairs, Office of the Rector and Office of Printing.

Owing to the fact that courses are prepared by teams of instructors from various institutions of higher education and experienced specialists from both the public and private sector working together, no fewer than 1,000 persons are employed for this purpose.

Tutorials and regular courses of STOU still require cooperation from outside government agencies. There are 11 Regional Centers, 66 Local Study Centers, 75 Special Study Centers (Library Corners), 7 Agricultural and Cooperative Centers and 22 Health Science Centers. These centers are assisted by officials from the Ministry of Education, the Ministry of Agriculture and the Ministry of Public Health. In carrying out the work, in 1987, STOU employed 430 of its own faculty staff and 1,093 qualified persons from 119 institutes and agencies all over the country.

Financial Aid from the Government and University Revenue

Revenue from STOU's work and from the Governmental budget per fiscal year (October – September) is as follows:

TABLE 19: STOU Revenue and Budget received from Government

Fiscal Year	STOU Revenue (Baht)	Governmental Budget (Baht)	Total Received (Baht)
1980	37,558,000	17,731,800	55,289,800
1981	105,840,000	46,857,900	152,697,900
1982	168,931,800	55,037,800	223,969,600
1983	264,400,000	69,647,800	334,047,800
1984	304,600,000	89,573,700	394,173,700
1985	303,808,460	68,136,000	371,944,460

Capital Cost

Capital Cost : Building

In 1987 STOU occupied an area of 165 rai of which 30 rai was a donation and the remaining 135 rai were purchased for construction of buildings. The first phase of construction was completed in 1984 with completion of the Seminar Building, the Administration Building and Academic Affairs Buildings 1 and 2 at a cost of 258 million baht as well as the EBPC Building at a cost of 176 million baht. In 1986 construction of the University Storehouses and University Press Building was completed at a cost of 86 million baht with an expected life of 25 years thus bringing the total cost to 520 million baht. *

Capital Cost : Equipment

In 1987 the University's capital cost: equipment was valued at not less than 260 million baht, of which equipment used for producing radio and television educational broadcasts, such as T.V. cameras and recorders for radio broadcasts came to not less than 120 million baht.

In addition, there are printing presses, furniture and furnishings and 62 motor vehicles used for carrying out the work of the University.

Capital Cost of STOU Radio Programmes.

The EBPC Building occupies 1,293.28 square meters of land and has an expected life of about 25 years. For details of the capital cost of STOU radio programmes see the following table.

Figures from table 20 show the annual capital costs of STOU's radio programmes to be 8,707,247 baht.

TABLE 20: CAPITAL COST OF STOU RADIO PROGRAMME

	A TOTAL EXPENDITURE (B)	B % INVOLVED IN STOU RADIO PROGRAMME	C CAPITAL COST OF STOU RADIO PROGRAMME (A * B) B	D LIFE SPAN (N) (YEARS)	E A (.13, N)	F ANNUAL COST (1985 B) (C * E) B
BUILDING (EBPC)						
CONSTRUCTION	88,011,116	0.33	29,337,039	25	0.1364	4,001,572
LAND	409,983	0.33	136,661	50	0.1303	17,807
STUDIO (EBPC)						
EQUIPMENT	90,453,141	0.33	30,151,138	15	0.1549	4,661,366
FURNITURE	226,400	0.33	75,467	10	0.1846	13,878
TELEPHONE						
START UP	290,656	0.33	96,885	50	0.1303	12,624
TOTAL	179,391,569	0.33	59,797,190			8,707,247

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* **Remarks:**

- STOU is an Open University with no classrooms on its campuses. Tutorials are held at provincial service centers.
- The University's buildings comprise administrative buildings, a library for STOU staff, a building for registration, records and evaluation, a building for educational technology and building for academic affairs handling the work of the office of Academic Affairs and the various schools.
- The EBPC Building is used for the production of STOU's education radio and television broadcasts.

VI. OUTCOMES

1. Student Performance

1.1 Number of Students

The total of both newly registered and already registered students shows, when observed annually, that, from 1980 to 1986 the total number increased steadily.

TABLE 21: Number of Total Students by Academic Year and School

Schools	Academic Year						
	1980 – 1	1982	1983	1984	1985	1986	1987
Liberal Arts	–	–	–	–	861	632	908
Ed'l Studies	75,334	45,979	40,996	45,180	40,886	35,398	27,389
Mang't Science	6,805	20,625	22,358	37,712	46,943	50,647	43,894
Law	–	29,961	29,017	40,336	40,879	38,212	31,700
Health Science	–	3,990	4,204	7,808	10,133	11,489	12,414
Economics	–	1,553	2,626	4,292	4,002	3,508	2,952
Home Economics	–	2,355	3,908	5,538	7,080	4,141	5,894
Political Science	–	–	3,800	6,736	8,245	8,936	8,476
Agri Extension	–	5,379	5,085	6,749	6,958	6,556	5,760
Communication Arts	–	–	–	4,332	7,874	9,080	9,145
Total	82,139	109,842	111,994	158,683	173,861	171,861	148,532

1.2 Rate of Students Graduation and Successfully Passing Examinations

Students graduating and successfully passing their examinations show the approximate total as follows:

For the two year continuing education Bachelor Degree Programme 38% of the total for each academic year; for the three year programme 20%; and for the four year Bachelor Degree programme 15%. For students enrolled in Certificate programmes, 37% of the total of each class will be successful.

1.3 The First Graduation

The first graducation in 1982, comprising only 2 schools, Educational Studies and Management Science, had a total of 9,594 successful graduates.

The highest total of graduates was in 1983, with 17,237 successfully passing from four schools. The School of Educational Studies had the most with 14,528 graduates; the other Schools were Management Science, Home Economics and Agricultural Extension and Cooperatives. This trend has continued owing to the large number of students enrolling in the School of Educational Studies.

The total number of graduates from Sukhothai Thammathirat Open University from 1983 to 1986 was over 10,000. Each year produces more graduates from the newer Schools: in 1982 there were graduates from only two schools, in 1983 from four schools but by 1984 there were graduates from six schools, with the addition of the schools of Law and Health Science. For 1985 graduates came from seven schools, with the addition of the Schoolof Economics and in 1986, the School of Political Science had its first graduates, thus totallying 8 schools.

The number of graduates from each School has shown an annual increase, with the exception of the School of Educational Studies which following 1984 showed a lower figure although still comprising the largest group of graduates.

1.4 Evaluation of Students' abilities by Alternative Methods

Interested persons have researched the abilities of STOU students, in other areas. The research titled Occupational Benefits of Open University Education (Thailand) by Associate Professor Dr. Preecha Kamphirapakorn and team followed-up the results of the work of STOU students in School of Educational Studies, majoring in secondary and primary education, educational administration and students in the local administration training programme and found a higher level of capability in their work and they were able to work with their colleagues. The students, their colleagues and superiors were used in evaluation. The results were in line with the findings of Maethi Piyakhun on the graduates of the School of Educational Studies STOU (1982) which showed that the students carried out their work in line with what they had studied, showed a high level of job satisfaction, used their knowledge in their jobs and received great benefit overall.

TABLE 22: Total of Graduates by School

School	1982	1983	1984	1985	1986
Educational Studies	8,217	14,528	7,443	6,954	6,526
Management	1,377	1,956	1,906	1,830	2,355
Law	–	–	572	1,033	1,672
Health Science	–	–	83	695	887
Economics	–	–	–	51	88
Home Economics	–	250	539	536	490
Political Science	–	–	–	–	222
Agricultural Extension and Cooperatives	–	503	644	671	972
Total	9,594	17,237	11,487	11,770	13,185

1.5 Requesting Degrees or Associate Degrees

All Students wishing to receive any degree must complete the requisite number of courses and fulfill the requirements of his of her school.

If a student should request an associate degree from a School with no associate degree programme, he must pass a minimum of 75% of the required courses for a Bachelor Degree of the programmes for which he wished to receive the associate degree.

In addition, students must complete their studies within the time allowed for each programme (1, 2, 3 and 4 year) which is 3 times the number as follows:

PROGRAMME	MAXIMUM TIME PERMITTED
1 year	3 years
2 year	6 years
3 year	9 years
4 year	12 years

1.6 Achieving the University Goals in Education Organization

From research on following-up the results of graduates by Associate Professor Dr. Preecha Kamphirapakorn and team and Maethi Piyakhun along with research study on the work of STOU graduates by the Planning Section, it has been found that the educational organization of the University has satisfactorily met the goals desired in many areas:

a) Students have been able to utilize their knowledge in their work with a resultant increase in efficiency and have impressed their colleagues and superiors.

b) The majority of the University's students are already employed and aim to increase their qualifications or knowledge in their work. Most students are government employees and will not change their jobs following their studies. The opinion of the students is that the courses they have taken have been of benefit to them in their work, and they can apply their knowledge so as to advance in their careers and increase their expertise as they hoped. The students are generally satisfied with the knowledge they have gained at the University.

2. Programmes, Materials, and Services of the Educational System

2.1 The suitability of the educational programmes, materials and services at other institutions at national and international level can be utilized beneficially.

2.1.1 The educational programmes of the University are of interest to other institutions, leading to cooperation between STOU and these institutions such as training programmes for educational administration between the School of Educational Studies and the Office of the National Primary Education Commission, which is a training programme using distance education.

2.1.2 The continuing education programme, designed to increase the level of education of the general public, has attracted interest from people of all ages.

2.1.3 The University's educational material, especially its texts, are used by both other universities and teachers' training colleges. Some texts are used by students as research tools. Some persons purchase texts for use in independent study. Audio and video cassette tapes have been borrowed by other universities for teaching or other academic purposes.

2.1.4 The STOU Corners are used by the public and agencies of all types. In particular the Office of Documentation and Information receives requests for service from other agencies.

2.1.5 The University holds training programmes for interested institutions, both within and outside the campus for both public and private agencies and will organize the course material itself or use the course material of the requesting party.

2.1.6 The University's Seminar Center is open for other agencies interested in various areas.

2.1.7 Both public and private national and international agencies are interested in the work of the University, therefore a tour for interested parties is available every Friday.

2.1.8 The educational media produced by the Office of Educational Technology has attracted the attention of public and private parties who request assistance in producing such media.

2.2 Future Plans for Expansion of Knowledge Expertise and Services.

2.2.1 Educational Programme
A new school is planned, the School of Science and Technology, and new programmes and courses are planned for different schools. for example, the School of Educational Studies will open Masters Degree programmes in Educational Administration and Curriculum and Instruction, Bachelor Degree programmes with majors in Educational Guidance, Non-formal Education, and Test and Measurement.

2.2.2 Education Materials
An increase in educational media production is planned. Aside from texts, cassettes, tapes, and radio cassettes, video tape production may also be increased. Computer will be used in learning and instruction, At present this is still in the testing stage.

2.2.3 Service
In the future the University is preparing to disseminate various media via television station 11 for educational purposes.

3. Change in Educational Philosophy and Practice

3.1 Effects on the Closed Education System:

The open education system of the University has resulted in an increase in use of educational media and interest in training programmes on the application of distance education has been shown by many institutions, as well as an increase in textbooks for use at the university level.

3.2 Influence on Informal Education:

Informal education with independent study has shown an increase by use of many types of educational texts similar to those used by STOU with a commensurate interest in life long education. Informal education is directly aimed at increased efficiency on the job.

4. Effect on the Majority of Thai Society

4.1 Interested Persons in the Educational Programmes:

Radio and television broadcasts of STOU have expanded to the general public owing to the increase in radio and television sets, especially the latter which have increased rapidly. This has drawn attention to STOU's broadcasts especially, since the government has forbidden entertainment programmes between 6.30–7.30 p.m. daily.

4.2 The Increase of Opportunities for Higher Education for those Unable to Enter the Closed System:

STOU has expanded the opportunity for the populace to increase their qualifications and knowledge. This can be seen from the number of students enrolling to enhance their status at their places of employment. Others, seeing the average age of STOU students at about 30 and more, realize their chances to improve their education are not mere dreams, unlike the closed system at the Bachelor Degree level.

4.3 Increased Efficiency of Radio and Television Programmes:

The University has constantly attempted to produce radio and telecasts geared to the general public by improving efficiency as well. There is a programme to evaluate and upgrade programmes and when TV Channel 11 is able to broadcast over the entire country the University will have to produce beneficial programmes for the general public to an even greater degree.

4.4 Other Effects

4.4.1 Cooperative projects with other agencies have led the University to offer the following special courses in cooperation with various agencies:

- Certificate in Public Administration
- Certificate in Land and Property Law
- Certificate in Basic Home Economics
- Certificate in Local Administration
- Training Course for Elementary Educational Administrators
- English Language Administrators Course

Persons attending take examinations identical to regular students.

4.4.2 Continuing Education Programme

This programme was set up by the University for interested persons desiring to improve the quality of their lives and work through knowledge. This is a life-long programme not aiming at a certificate or degree. However, interested persons may take examinations and if successful receive certificates of achievement.

4.4.3 Programme for Talented Children

This programme is run in cooperation with the private sector to give scholarships to graduates of elementary Year 66 who are talented in school and lack the money to continue their studies. This scholarship is given in payments depending on academic performance from secondary school to the Bachelor Degree. This scholarship is granted to one student per province. This programme is undergoing long-term research to gather data to improve the course and system of learning/teaching, including finding an educational plan suitable to the conditions of Thai children and society. At present the University has seven classes of students in this programme totalling 438 students.

4.4.4 The Sukhothai Education Programme

The University set up this programme for study and research of the Sukhothai Kingdom, the first in Thailand, to benefit scholars and enhance understanding of the origins of the Thai society. Radio and radio/telecasts disseminate the data.

4.5 The Educational Park

The University has planned to construct an educational park within the STOU campus, covering, about 135 rai. It will serve as a park and a garden harmonizing with a multi-benefit use for public relations to serve as a source for education at the general public's disposition, improve the quality of life through knowledge and continuing education. It will be a source of academic interest for students of all levels to increase their knowledge and educational techniques. It will be a center for the public to organize academic and recreational activities as well as a source of peace and relaxation for the public.

VII. FUTURE TRENDS AND PRIORITIES

From the plans laid out in the Annual Operation Plans, National Educational Development Plans and University Development Plans, along with the administrative policies set forth by University administrators in the media and to the STOU staff, it is possible to perceive future trends and priorities as follows:

1. Opening Courses in Science and Technology

During the period of the Sixth National Educational Development Plan (1987 – 1991) the University proposed and was granted permission to set up a school and open courses at the Bachelor Degree level in the field of science and technology. At present the University is in the process of developing a programme and preparing instructional material with priority given to courses in computer technology and printing technology. Courses in other fields will be opened thereafter.

2. Opening Courses at the Post-Graduate Level

During the period of the Sixth National Educational Development Plan, the University plans to open courses at the post-graduate level especially the Masters' Degree at the School of Education in two fields: educational administration and curriculum and instruction. To prepare for this the University has set up a committee and working group to organize a system for study and instruction as well as improvements in the curricula of the two branches mentioned above. The estimated beginning of this programme is in the 1990 academic year. This programme is designed to meet the needs of teachers and persons working in the field of education who wish to upgrade their academic status and professional experience.

3. Establishing an Improvement Programme for Personnel of Various Agencies through the Distance Education System

At present it is evident that knowledge and technology, as well as the social and economic environment, have undergone rapid changes with a resulting need for various agencies to regularly train and upgrade their personnel. Realizing the importance of this, the University has constructed buildings such as an addition to the Seminar Building to accommodate trainees and persons attending seminars and the Lecture Theatre equipped with multi-media facilities (multi-vision) to hold international seminars. It has also prepared training texts and media of different types to expand these training programmes and consequently upgrade the personnel of the agencies involved.

4. Improving Research

In the past, the University has put its main emphasis on meeting the educational demands of the society resulting in little room for research. This is because the faculty and the majority of the staff have devoted most of their time to improving the distance education system which is new to Thailand.

At present, the distance education system has received general acceptance as a valid method of study as well as a means of improving the quality of life of the Thai people. To further improve upon this, the University is placing greater importance on improving research, both academic and institutional. Therefore the Universiity has produced a master plan for research, including encouraging the faculty to cooperate in research activities with other institutions and agencies. Through this encouragement the University has been requested by the Office of the Prime Minister to carry out research and development in public relations and information concerned with increasing rural employment. The University is also playing a part in the "Green Northeast" programme.

5. Providing Public Service

Providing academic service to the public is another activity to which the University attaches importance for the second decade of its operations. From 1988 onwards, the most important project of the University is the Educational [illegible]rk, a public park for informal education combined with entertainment. There will also be a garden with various species of ornamental plants indigenous to Thailand, exhibitions of modern educational media and Technology, and shows of native arts from the four regions of the country.

Construction of the Park will begin from 1988 and when completed will be another type of open education helping to improve the quality of life of the general public.

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UNESCO
Project Report

THE INDONESIAN OPEN LEARNING UNIVERSITY

A Case Study Conducted Under the UNESCO Project on the Study of Asian Institutions Making Large-Scale Use of Communications Technologies for Educational Purposes.

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1. National Profile

1.1 Geography

The land area of the Republic of Indonesia, 1.9 million sqkm, is composed of 13,677 islands, only 47% of which are inhabited. The sea area which is about 7.9 million sqkm constitutes 81% of the total area of the country.

Indonesia shares political borders with Papua New Guinea on the east and Malaysia on the north. It is a near neighbour to Thailand, Singapore and the Philippines. It stretches along the Equator between 94° 45′ and 141° 5′ east longitude and 6° 8′ and 11° 15′ south latitude. The country is administratively divided into 27 provinces, 246 kabupatens (regencies), 55 kotamadyas (municipalities), 3539 sub districts and 67,534 villages.

1.2 Population and Demographic Trends

Indonesia is the fifth most populous country in the world after China, India, Russia and United States of America. The total population is 165 million. In order to lower the birth rate, a family planning programme has been launched. The annual growth rate is expected to decrease to 1.9% in the period of 1995–2000.

The population is unevenly distributed among islands and provinces. For example, Java, which is only 6.9 percent of the total land area of Indonesia, is inhabited by 61% of the population. In contrast, the Province of Irian Jaya has 21.9% of the country's land area but only 0.7% of the population.

1.3 Religiouns and Languages

Indonesia, like India, is a multi-religion and multi-lingual country. There are 5 officially recognized religions: Islam, Catholicism, Protestantism, Hinduism, and Buddhism. 90% of the total population is muslim. There are more than 125 languages spoken throughout the country, but the official language is Bahasa Indonesian.

1.4 Communication Infrastructures

Indonesia has a modern communication satellite (PALAPA) which covers 95% of the population and 90% of the area of the country.

Government controlled radio and television systems are called "Radio Republik Indonesia" (RRI) and "Televisi Republik Indonesia" (TVRI) respectively. RRI was established in 1945 and TVRI in 1962. In 1985 there were 5.7 million TV sets in the country, most of which were concentrated in urban and semi-urban areas.

1.5 Economic Features

Agriculture is the most important industry employing 54.6% of the country's man-power. Success in this sector was marked with an award given by The Food and Agriculture Organization in 1986 for self-sufficiency in food. National resource industries and manufacturing are developing rapidly.

Foreign currency earnings come primarily from oil exports. With low oil prices in the last few years, the government has encouraged non-oil exports such as ready made clothes, textiles, rubber, tea, coffee, tobacco, shrimp, rattan and palm oil.

2. Educational Profile

2.1 Conventional Provision

2.1.1 Education before Dutch Colonialism

The history of education in Indonesia began when religions flourished. In the fourth century AD, education was primarily concerned with Hindu religious instruction. Later, Islam was taught in Islamic schools called pesantren. Hindu and Islam were taught in similar ways. A student who wanted to study Hinduism would live with his teacher's family. He became the member of the family. He helped his teacher in his house, farmyard, and rice field and got his education directly through him. Similarly, a student who wanted to study Islam would live with a Kyai (an Islamic teacher) for several years.

Islamic centers delivered knowledge differently from modern schools. They did not follow any particular instructional system. Students were not given certificates or diploma, but as long as they could recite the Holy Koran, they were considered to be graduates. Islamic study was given person by person and, thus, there was a close relationship between teacher and student. Students did not pay fees.

In summary, the education obtained by Indonesian people before the arrival of The Dutch was based mainly on religion, especially Islamic teaching. (Modern Islamic teaching will be discussed in detail in "non traditional provision" section).

2.1.2 Education (Dutch Colonialism to 1942)

The Dutch Government established schools in order to educate their own children and, thus, the educational system they used was imported from Holland. Before the Dutch, the Spanish and Portuguese had established a few Catholic schools (seminaries) in Ternate and Solor.

For the purpose of training low level administrative people, the Dutch Government built schools for Indonesian children. The principalships and middle positions were held by Dutch people.

In 1907, village schools (Volkshcool) were established (3 academic years) and after that, Vervolgschool (2 academic years). These were for the common people. In 1924, Schakel school (5 academic years) was opened to bridge the school for high ranking officers' children and the school for common people's children.

In short, there were three kinds of schools: schools for Dutch children; schools for high ranking Indonesian officers' children; and schools for low ranking Indonesian officers' children.

Beside schools that were built by the Dutch Government, Indonesian nationalists established public or private schools such as:

- Perguruan Taman Siswa
  Established by Ki Hadjar Dewantoro in Yogyakarta in 1922. The philosophy of this school was "Tut Wuri Handayani" which means educating children to use their mind and ability as freely as possible; teachers are only facilitators.

- Sekolah Muhammadiyah
  Because the Dutch Government was neutral on religious matters, K.H.A Dahlan built public schools combined with Islamic lessons namely Muhammadiyah in Yogyakarta in 1912. Sekolah Muhammadiyah consisted of kindergarten, elementary, secondary, and high schools. After the Independence in 1945, a university was established in Yogyakarta.

- Sekolah Kartini
  This school was only for girls.

During the Dutch colonial period, higher education consisted of the following institutions:
- Indische Universiteits Vereeniging (1910).
- Koninklijk Instituut Voor Hooger Technisch Onderwijs (1918).
- T.H.S or Higher Technical School in Bandung (1920).
- Rechtschool or Law school (1909).
- Recht Hoogeschool school or higher Law School (1924).
- Stovia followed by NIAS and then Genees Kundige Hoogeschool or Medical School in Surabaya.

2.1.3 Education during The Japanese occupation (1942 – 1945)

During this period, private schools were closed but public schools remained open with the slogan "Great Eastern Asia" (Asia Timur Raya). The Japanese Government did the following:

- forbade people to speak Dutch
- forced people to speak Japanese
- allowed the use of the Indonesian language (bahasa Indonesia).
- gave military training at all schools
- forced people to learn Japanese culture and history
- viewed geography from geopolitic point of view.

The Japanese Government opened the following types of schools:

- elementary schools
- secondary schools, elementary teacher training schools, technical schools, middle higher schools
- higher technical school
- higher medical schools
- higher teacher training schools

2.1.4 Education from National Independence (1945) until the Present

The Indonesian population increased rapidly after Independence and there was a growing awareness of the importance of education. Similarly, there was awareness of the need for change and development in the educational system.

This country's educational strategy had to fit the goals of national development. There had to be guidelines for teaching and learning activities which suited the constitution and strategy of national development. For these reasons, various kinds of schools were established to fulfil national aspirations.

Education begins with pre-school education or kindergarten or even with playgroup followed by elementary school, high school, and higher education or university/college/academy. High schools consists of junior and senior high schools, general as well as vocational, each of which takes 3 years to finish.

At the present time, there are 46 state and almost 1,000 private universities/academies in almost all capital cities of provinces and even in capital cities of regencies.

2.2 Non Traditional Provisions

Open Secondary Schools

For the time being, one of the requirements for entering secondary school is that a pupil must reach 75% of the minimum standard of grades of all lessons taught. Ideally, it should be 100% because elementary school graduates are conceptually prepared to continue their study to secondary school. For that reason, the government established open secondary schools at five location in Kalianda in Lampung, Plumbon in West java, Adiwerna in Central Java, Kalisosok in East Java and Terora in West Nusa Tenggara.

These schools apply the same educational curriculum but their delivery teaching mode is not face-to-face. On the contrary, they use cassettes, modules, and packages of programmes as media for teaching. Students are guided by "guru pembimbing" (persons who are considered as counsellors) who are prominent society members such as elementary school teachers, parents, etc. At the end of every year the students take examinations together with students from regular secondary schools.

By opening the open secondary schools, the problem of booming elementary school graduates has been solved or, at least, decreased.

2.3 Unmet Demand

2.3.1 Elementary Schools

a. Number of children aged 6–14 who do not have access to school is 1,916,719.
b. The ratio of teachers to students is 1 to 45 when it should be 1 to 35.
c. The number of teachers that fills requirements was 98.8% in 1986/1987.
d. Curriculum has not yet been formulated in a concrete way.
e. There are not enough laboratories, libraries, cafes and workshop rooms. Only 88% of school buildings meet minimum standards.
f. The ratio between teachers and teachers' manuals is 4 to 1. Kits and laboratory kits are insufficient.
g. There are not enough administrative staff for schools and instructors for workshop, laboratories, clinics, libraries and sport development.

2.3.2 Secondary Schools

a. 90% of teachers are qualified. Teachers emphasize memorization and sometimes teach without appropriate preparation.
b. Curriculum does not have specific objectives. Course materials, media, and teaching methods are out of date.
c. Facilities cannot cope with the number of elementary schools graduates. In 1986/1987, only 85% of elementary school students had access.

2.3.3 State Universities

a. Quantity of high school graduates.
In 1985/1986, only 67,029 high school graduates out of 431,617 gained acess to state universities.
b. In 1985/1986, only 5% of 25,894 lecturers in state universities had doctoral degrees.
c. The ratio of lecturers to students is 1 to 75.
d. The quality of administrative staff is not yet appropriate.
e. Curriculum does not fit into the demands of the present era. It does not take into account advanced and modern technology. The method of teaching used is still one-way communication.
f. Facilities are crowded and out of date. The quality of kits and school buildings does not suit technological advance and modern knowledge.
g. Ability to speak Bahasa Indonesia and other languages needs to be improved. There are a lot of publications that do not reflect good writing style and standardized Bahasa Indonesia despite the fact that they are written only by a small number of lecturers.

3. Universitas Terbuka

One result of the first, second, and third Five-year Development Plans has been the increase in the number of elementary school graduates. Consequently, the schools at junior secondary level have also increased their enrollment. New school buildings have been built by government as well as private institutions. But now a new problem arises as these students want to continue their education to a higher level, including universities. However, the participation rate of the 18–24 age group people is small. In 1978, it was 2.5% and now it has increased to only 5.1%. In 1984, there were 483,000 senior high school graduates who applied in state universities and only 15% of them could be admitted. in 1985 there were 600,000 applicants, and as in 1984, only 15% of them were admitted to conventional state universities. It is estimated that by the end of the Fourth Five-year Development Plan, there will be one million senior high school graduates annually, while the number of the 20–24 age group will be 16.3 million.

In addition to these senior high school graduates there are also a great number of employees who want to improve their knowledge and skill to higher levels. Their problem, however, is that it is very difficult for them to go to conventional universities because of their limited time. One solution to this problem has been to provide them with a distance-learning system in a state institution known as Universitas Terbuka (UT). This university was officially opened by the President of the Republic of Indonesia on September 4, 1984.

The mission and objectives of UT are:

a. To provide learning opportunities for those who have no access to higher education because of geographic, social economic and physical constraints.
b. To provide learning opportunities for teachers and lecturers as well as other manpower working in other sectors to improve their skills and academic abilities.

B. SYSTEM DESIGN by: Mas Mahdi and Aria Djalil

1. Planning and Establishment

1.1 Chronological History of Universitas Terbuka (UT)

An educational programme to increase the enrollment in higher Education had been started in 1955 by the government through the Ministry of Education and Culture (MEC) by initiating the implementation of Distance-learning Programme (SBJJ) for teachers' education.

The agency responsible for this programme was recognized as Teachers' Education Center (BPG) located in Bandung. In 1975, a Teachers' Education Programme through radio was implemented in eleven provinces, and in 1976, another similar programme was also implemented in several Teachers' Training and Education Institutes (IKIP). In 1980, an educational programme through modules was implemented for university lecturers taking the Akta V Programme. In 1982, a distance-learning programme was implemented for the Educational Certificate Programme, and in 1984, an effort was made to try out a teaching programme through satellite in several state universities in eastern parts of Indonesia.

The establishment of Universitas Terbuka had been clearly planned in the fourth Five-year Development Programme. In 1983, a committee responsible for the preparation of the establishment of Universitas Terbuka was organized as a project under the Directorate General of Higher Education. This committee was affirmed by a letter issued by the Minister of Education and Culture No. 0464/P/1983 dated October 22, 1983. The task of the committee was to prepare and plan all teaching-learning activities through a distance-learning system in a higher education institution. The committee was given only nine months to accomplish its task. It was understood that in this relatively short period, the committee would not be able to establish a university as complete and as perfect as those abroad which needed four to six years of preparation. Several efforts that were very conductive to the accomplishment of the committee's task were:

a. Recruiting learning material writers from state universities in Jakarta and neighboring cities;
b. Obtaining cooperation from rectors of other universities to assist UT with personnel and facilities in the provinces, such as lecturers, tutors, office space, and libraries.
c. Negotiating a deal with the national Postal Service to deliver learning materials to the students and UT personnel in the provinces.
d. Cooperating with the Computer Science Center of the University of Indonesia to help in the processing of UT students' data;
e. Inviting some consultants from various international agencies to help UT design a masterplan for future development.

Universitas Terbuka was finally officially established by the issue of President's letter No. 41, dated June 11, 1984 which stated UT as the 45th state university under the aegis of the Ministry of Education and Culture (MEC). Based upon Government Act No. 5, 1980, further detail of the organization of UT was formalized under the Minister of Education and Culture's Act No. 0389/O/1984 dated August 27, 1984.

1.2 Infrastructure Facilities

In the first years of UT, the Rector and his staff did not have adequate office space. A small part of a building at IKIP Jakarta was rented for the office. In fiscal year 1985/1986, a campus was built in Pondok Cabe in the region of Tangerang, West Java. The construction of this campus was made possible, quite by chance, by the cancellation of the Scientific Meeting Center Development Project due to the restriction of the state budget. The National Bureau for National Development Plan gave its approval for UT to use the project site and budget to build the UT campus consisting or three buildings on the six hactare site. Another facility that was needed to support the speed of data processing and administrative work in UT was a computerized system. For this reason, UT had to purchase an affordable mini-computer with a capacity far below that needed. UT also purchased 15 word processors and a small offset printing machine.

1.3 Enrollment

The Minister of Education and Culture instructed the Committee for the Preparation of the Establishment of UT to make UT ready to operate in September, 1984.

The Minister set the target for UT to admit 65,000 students, while in fact the committee set the target to admit only 25,000. With the Minister's instruction, the registration for enrollment was conducted from April to June, 1984. The registration was carried out in two ways, i.e. through Postal Service Office and through Sipenmaru (Selection of New Students System). The number of student applicants in both ways was 270,000. From those applicants, 60,367 submitted the necessary papers to be admitted as UT students.

1.4 Field of Studies

When UT was officially opened in 1984, it had only four faculties: Faculty of Teachers Training and Education (FKIP), Faculty of Economics (FEKON), Faculty of Social and Political Sciences (FISIP), and Faculty of Mathematics and Science (FMIPA). The number of majors offered in the four Faculties is 31 consisting of D1, D2, S1, and Akta V Programmes, as can be seen in the following table.

TABLE 1: List of Majors by Faculty and Students Target Group 1984/85

Faculty and Programme	Major	Target
Faculty of Education (FKIP)		
D1	– Indonesian Language	SMTP Teachers
	– Mathematics	
	– Ed. of Pancasila Ideology	
	– Home Economics	
D2	– Indonesian Language	SMTP/SMTA Teachers having relevant D1 certificate
	– English	
	– Ed. of Pancasila Ideology	
	– Mathematics	
	– Home Economics	
	– Service Skill	
	– Technical Skill	
	– Natural Science	
	– Social Science	
	– Out-of-school Education	
	– Sports and Health	
Akta V	– Indonesian Language	University Lecturers
	– English	
	– Mathematics	
	– Ed. of Pancasila Ideology	
	– Education	
	– Biology	
	– Chemistry	
	– History	
	– Economics	
	– Sports and Health	
	– Teaching Technology	
	– Guidance and Counseling	
Faculty of Economics (FEKON)		
Strata 1	– Economics and Development Studies	SMTA Graduates
Faculty of Social and Political Sciences (FISIP)		
Strata 1	– Public Administration	SMTA Graduates
	– Business Administration	
Faculty of Mathematics and Science (FMIPA)		
Strata 1	– Applied Statistics	SMTA Graduates

For FKIP the programmes offered are the continuation of Distance-learning programme that was previously managed by the Teachers' Education Center.

1.5 Courses

The types of courses offered in UT consist of General Basic Course (MKDU), Professional Basic Course (WKDK), and Professional Course (MKK). The number of courses and units which were available in the first and second semesters of 1984/1985 were as follows:

TABLE 2: Number of Courses in Semester I and II in 1984/85 per Major

Faculty and Major	Semester I		Semester II	
	# of Courses	# of Credits	# of Courses	# of Credits
FKIP				
a. D2 Indonesian Language	2★	5	3★	8
b. D2 English	7	10	7	10
c. D2 Ed. of Pancasila Ideology	3	7	6	12
d. D2 Mathematics	5	11	6	12
e. D2 Service Skill	2	4	6	12
f. D2 Natural Science	4★	11	4★	12
g. D2 Social Science	8	16	8	17
h. D2 Out-of-School Education	7★	19	2★	5
FEKON: S1 Economics and Development Studies	5	12	5	13
FISIP:				
a. S1 Public Administration	5	12	5	13
b. S1 Business Administration	5	12	5	13
FMIPA: S1 Applied Statistics	5	12	5	13

★ Excluding MKDU and MKDK

1.6 Foreign Relations

Several international agencies have given or continue to give support in the form of project assistance and training as follows:

a. Project assistance from: CIDA, IUC World Bank XVII Education Project (Loan No. 2547-IND), and French Government.
b. Training/scholarship from: USAID, ADAB/Australia, Japanese Government, French Government, and CIDA/Canada.

2. Organizational Structure

2.1 Structure of Organization

2.1.1 Central Level

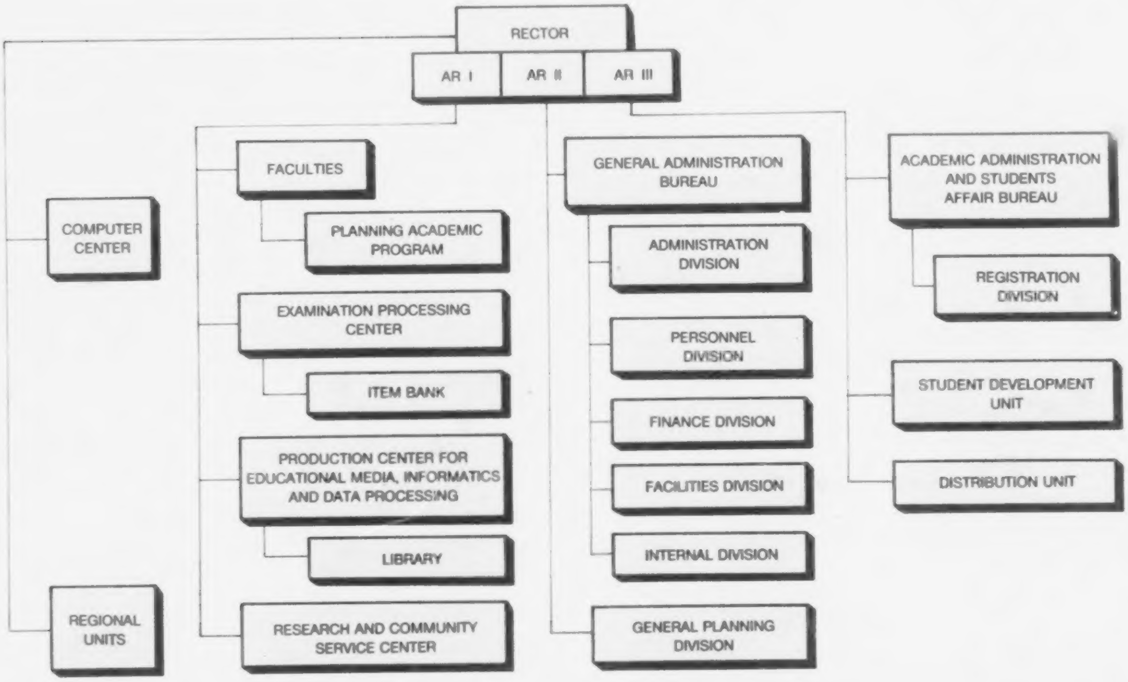
a. The highest level of management at UT is held by a Rector who is assisted by 3 Assistant Rectors:
   - Assistant Rector I, responsible for teaching and learning programme, research, and community service.
   - Assistant Rector II, responsible for general administration, finance, and personnel.
   - Assistant Rector III, responsible for student affairs.

b. Assistant Management
   - Academic and Student Affairs Bureau, responsible for technical and administrative service such as academic administration, registration, students' statistical data, cooperation, and general planning.
   - General Administration Bureau, responsible for internal affairs, personnel, finance, and facilities.

c. Implementing Agencies
   - Faculty, responsible for the implementation of the distance-learning programme. Each faculty is headed by a Dean assisted by 3 Assistant Deans. The responsibilities of the Assistant Deans are parallel with those of the Assistant Rectors but at faculty level. The faculty also has a Division of Administration responsible for the faculty's administrative work.
   - Research and Community Service Center, responsible for the development of science and technology, the implementation of research work designed by faculty members and students, and the provision of service to the community in science and technology.

d. Supporting Agencies
   - Center for Educational Media Production, Information, and Data Processing, responsible for the production of educational media such as printed materials, audio-visual, information, data processing, and providing reference for teaching-learning activities, research, and comminity service.
   - Test Development Center, responsible for the coordination of test item construction and the administration and scoring of tests.

ORGANIZATIONAL STRUCTURE


RECTOR
AR I
AR II
AR III
COMPUTER CENTER
REGIONAL UNITS
FACULTIES
PLANNING ACADEMIC PROGRAM
EXAMINATION PROCESSING CENTER
ITEM BANK
PRODUCTION CENTER FOR EDUCATIONAL MEDIA, INFORMATICS AND DATA PROCESSING
LIBRARY
RESEARCH AND COMMUNITY SERVICE CENTER
GENERAL ADMINISTRATION BUREAU
ADMINISTRATION DIVISION
PERSONNEL DIVISION
FINANCE DIVISION
FACILITIES DIVISION
INTERNAL DIVISION
GENERAL PLANNING DIVISION
ACADEMIC ADMINISTRATION AND STUDENTS AFFAIR BUREAU
REGISTRATION DIVISION
STUDENT DEVELOPMENT UNIT
DISTRIBUTION UNIT

2.1.2 Provincial Level

At the provincial level there are 32 Regional Units as supporting agencies responsible for the implementation of the educational programme in the provinces. The task of these units is to manage the teaching-learning process such as giving service to the students, administering unit test, and assisting UT central office to take care of general administrative work.

Every Regional Unit has a supervisor who is also the Rector of the local state university, or the Head of the Provincial Office of Education and Culture, or even the Governor.

2.2 Responsibility

a. Planning academic programmes is the responsibility of Assistant Rector I together with Deans of the Faculties.
b. Planning and designing an individual course is the responsibility of each Faculty together with its faculty members.
c. Writing individual courses (modules) is the responsibility of lecturers from various state universities, officials from government offices, and practitioners from private agencies. The final preparation of modules is the responsibility of each Faculty.
d. Production of teaching materials is the responsibility of three units: Module Production Unit, Non-printing Material Production Unit, and The Faculties.
e. Evaluation of teaching materials is the responsibility of Faculties together with Research and Community Service Center.
f. Tutoring students is the responsibility of Assistant Rector III together with Faculties. The management of the tutoring in the provinces is the responsibility of Regional Units.
g. Counselling students in general is the responsibility of the Assistant Rector III together with Faculties and the Registration Unit. The counselling in the provinces is taken care of by Regional Units.
h. Marking assignments, in the first years of UT, was the responsibility of Faculties, but now is the responsibility of Regional Units
i. Setting examination. The construction of test items is the responsibility of the Faculties, and Regional Units are responsible for the administration of the test.
j. Marking examination. Since the examination centre is in Jakarta, examinations are marked by the Faculties together with the Computer Unit.

3. Personnel

Personnel is defined here as workers who work for a government institution employed under government regulation, with organic as well as non-organic status.

3.1 Management Personnel

3.1.1 At Central Office

Generally speaking, a newly established government institution is not immediately furnished with a set of organic personnel. Therefore in the first year of UT in 1984, the management of UT was not done by permanent (organic) workers. All workers were temporary workers "borrowed" from various government institution such as IKIP Jakarta, University of Indonesia, Office of Educational and Cultural Research and Development, Directorate General of Higher Education, and Secretariat General of MEC. Some of the workers were young recruits from Senior Secondary School and university graduates. Some of the workers were government officials from the institutions mentioned above with salary still paid by their respective institutions. Some others were temporary workers paid by UT. Of these workers, most of them were administrative personnel, and only a small portion of them were educational personnel "borrowed" from universities (about 14%). Almost all UT personnel at the central office work full time.

3.1.2 Provincial Offices

The number of personnel in the Regional Units throughout Indonesia is about 120. Almost all of them are personnel borrowed from local universities. Only a few of them are newly employed personnel from senior secondary school or universities. All Heads of the Regional Units and Heads of Programmes, with East Timor and Bogor as exceptions, are lecturers in the universities. The Heads of Administration Sub-divisions in the Units are also university personnel. In East Timor and Bogor, these positions are taken care of by personnel from Provincial Office of MEC.

3.2 Module Writers

The number of modules prepared in the first year of UT was about 72 for courses offered to students enrolled in 1984/1985. The module writers are lecturers from state universities such as IKIP Jakarta, University of Indonesia, IKIP Bandung, Bandung Institute of Technology (ITB), University of Diponegoro at Semarang, and University of Gadjahmada at Yogyakarta (UGM). Some modules for certain courses are constructed by experts outside universities.

A few modules have been constructed by UT personnel but almost all (98%) of module writers are experienced lecturers from state universities with reliable and qualified expertise in module writing.

3.3 Tutors

The majority of tutors are lecturers in local state or private universities specializing in the courses concerned. The major difference between module writers and tutors is in the seniority. All module writers are senior lecturers and most of the tutors are junior lecturers.

In the case of tutorials in Bandung, Bogor, and Jakarta, several UT Headquarter staff are also appointed as tutors in addition to university personnel. This makes the number of tutors throughout Indonesia about 2,750. On average, each course is handled by 2–3 tutors.

3.4 Item Constructors

Exercises and formative tests are constructed by module writers; take home examinations and final semester examinations are constructed by non-module writers. Tests are constructed centrally by a team consisting of module writers and other academic staff of UT and other conventional lecturers.

4. Budget

The UT budget is derived from 2 sources: government and the students. The budget from the government is of two types: routine budget and development budget. In fiscal year 1984/1985, UT's budget amounted to Rp. 7,880,920,000.00 or in 1988 currency rate US $ 4,805,440.00. This budget came from students' tuition fees Rp. 1,750,000,000.00 (US $ 1,067,070.00); the development (government) budget amounted to Rp. 6,130,920,000.00 (US $ 3,738,370.00). There was no routine budget since UT had no permanent personnel in that year. All expenditures, except salaries, were taken from student's tuition fees and the development budget. Further detail on the description of UT financial situation can be seen in D. COST.

5. Growth and Development

5.1 Majors

There are two types of majors currently offered in UT: educational and non educational.

5.1.1 Educational majors are managed by the Faculty of Teacher Training and Education. The majors are divided into degree and non-degree programmes.

a. The educational degree programme (S1) requires students to take 144–160 credits of required courses in one of the following areas: Indonesian Education, English Education, Biology Education, Physics Education, Chemistry Education, Mathematics Education.

b. The non-degree programme (D2): requires students to take 80–90 credits in one of the following areas: Mathematics, Natural Science, English, Indonesian, Educational of Pancasila Ideology, Social Science, Sports and Health, Out-of-school Education.

5.1.2 Non-educational Majors are managed by the Faculty of Economics, Faculty of Social and Political Sciences, and Faculty of Mathematics and Science. These majors are devided into two types: S1 degree programme with required courses of 144–160 credits and D3 non-degree programme with required courses of 110–120 credits. The description of the majors is as follows:

a. Faculty of Economics: S1 in Economics and Development Studies, S1 in Management.
b. Faculty of Mathematics and Science: S1 in Applied Statistics, S1 in Mathematics.
c. Faculty of Social and Political Sciences: S1 in Public Administration, S1 in Business Administration, S1 in Development Administration, D3 in Taxation.

Table 3 indicates the number of Majors offered by UT since 1984.

TABLE 3: Number of Majors offered by UT per Faculty per year

Faculty	Programme	84/85	85/86	86/87	87/88
FKIP	D1	4	–	–	–
	D2	11	6	6	8
	S1	–	4	6	6
	A1	–	–	–	–
	A4	–	–	–	–
	A5	12	–	–	–
FEKON	S1	1	1	2	2
FISIP	S1	2	2	3	3
	D3	–	–	1	1
FMIPA	S1	1	1	2	2
	TOTAL	31	14	20	22

5.2 Courses

Since UT has been operational for more than 3 years since September 1984, the number of modules for all courses has been increased considerably in accordance with curriculum requirements. The description of the number of required learning materials (RLM) for all majors offered at UT is as follows:

TABLE 4: Numbers of RLM by Majors and Faculty 1987/88

Faculty	Programme	Majors	No. of RLM
FKIP	S1	1. Indonesian Language	19
		2. English	25
		3. Biology	23
		4. Physics	23
		5. Chemistry	21
		6. Mathematics	23
	D2	7. Indonesian	30
		8. English	28
		9. Mathematics	26
		10. Natural Science	26
		11. Social Science	31
		12. Ed. of Pancasila Ideology	33
		13. Out-of-school Education	20
		14. Sports and Health	26
FEKON	S1	15. Development Economics	57
		16. Management	56
FISIP	S1	17. Public Administration	78
		18. Business Administration	78
		19. Development Administration	73
	D3	20. Taxation	67
FMIPA	S1	21. Applied Statistics	55
		22. Mathematics	54
Total			872

The number of courses with modules ready to be distributed at present is 356. The number of courses that should be offered by UT in all the available majors is about 500, with the number of modules amounting to 4,000. Therefore there are about 150 courses (30%) that have yet to be prepared.

5.3 In-take and Student Profile

It might be a fact of life that anything new can attract people's attention, no matter what the quality of the thing is. When UT was newly established, an unexpectedly large amount of attention was given to the University, thanks to the mass media, particularly newspaper and TV. At least 270,000 applicants from all over Indonesia sent in their applications to be admitted to UT.

However, after the first year, the number of applicants decreased from year to year. In 1985/1986, there were 150,000 applicants, representing a 44% decrease. When UT implemented a new registration system in 1986, the number of applicants drastically decreased to 100,000, a 33% decrease from 1985/1986. This situation has had an impact on UT intakes which have decreased dramatically from year to year. Nevertheless, the cumulative number of students increases every year as can be seen from the following table:

TABLE 5: Student Enrollment over Four Years

Year	Intake	Cumulative Enrollment	Active	Passive
1984/85	60,367	60,367	60,367	–
1985/86	45,797	106,164	73,843	32,321
1986/87	25,579	131,743	67,446	64,297
1987/88	4,068	135,811 *	70,726	65,085

* Status as of January 13, 1988.

The continuous increase in the cumulative number of UT students is not unusual since UT has no drop-out system. What UT has is active and passive students. Active students are those who register consecutively every semester; passive students are those who have not registered in more than a year. If students do not register consecutively in two years, they are dismissed from the university. When these students want to register again, they are treated as new students. In 1986/1987, there were 64,297 of them, or 49% of the total number of students that year. Table 5 also shows that in the last two years, there was an increase in the number of passive students compared to those in 1985/86. Based on observations by the Directorate General of Higher Education, the decrease in the number of new students entering universities is happening not only at UT, but also in other universities. There has not been any research as to why this happens, but it is assumed that senior secondary school graduates are now more interested in short-term vocational courses which promise more immediate results. In addition, it could be that economic reasons prevent students from enrolling at UT. Yet another factor may be involved. When UT was firstly established not all students realized that studying at UT would be more difficult than studying at conventional universities. Later when they discovered that being a self sufficient learner was difficult, their experiences could have spread among senior secondary school graduates and discouraged them from enrolling at UT. Furthermore, when UT changed the systems of registration, tutorials, examinations, etc, a high degree of confusion was faced by the students because they could not adequately adapt to the new systems. As a consequence, many of them dropped out of the system.

The following table illustrates UT students' profile.

TABLE 6: UT Students' Profile Based on Gender, Profession, Marital Status, Education, and Age (in%)

Variable	Indicator	%
Gender	a. Male	78
	b. Female	22
Profession	a. Working	84.6
	b. Not working	15.4
Marital Status	a. Married	55.3
	b. Not married	44.7
Education level	a. Senior Secondary School	79.7
	b. D1 – D2	8.1
	c. D3	10.7
	d. S1 – S2	1.3
Age	a. < 26	25.8
	b. 26 – 30	25.2
	c. 31 – 35	22.5
	d. 36 – 40	14.8
	e. > 40	11.7

5.4 Infrastructure

With UT's development budget, several buildings had been constructed, sufficient to accommodate existing personnel and activities in one compound. The area of the compound is 115,926 M2, and 12,242 M2 of it presently is used for buildings. During the fiscal year 1986/1987, one additional building was constructed for the Inter University Center for Instructional Development. Other facilities that contribute to the operation of UT is the completion of the printing unit capable of printing tests and examination papers, and some photo copy machines. In every working unit there is an adequate number of word processors, 173 in total. UT's Computer Unit has an MV 15,000 computer with a capacity of 8 MB memory and 3 MB disk drive capable of processing all examination results. The Research Center has IBM PC Comp/AT Turbo computer with the capacity of 20 MB memory, 1.2 MB + 360 K disk drive, and also a Data General with the capacity of 1 MB main memory, 77 MB additional memory, and 256 KB disk.

5.5 Personnel

With the development of science and technology, UT continuous to undergo rapid development. Consequently, it needs more personnel. In early 1984 when UT was newly established there were only 80 personnel. At the end of the year, it grew dramatically to 300. At the end of 1987, the third year, it had grown even larger to 500, and at the beginning of 1987, there were 660 staff. By the end of 1987 the number became 911. This means that UT central office staff is 11 times larger than at the beginning of 1984. In Regional Units, there were 120 personnel in the beginning of 1984, and at the end of 1984, it had grown to 331, that is 3 times bigger. Thus, the number of UT personnel throughout Indonesia at the end of 1987 was 1,242. If compared to the student enrollment (which is 70,726), each UT staff member serves 57 students. Data records in UT show that the number of educational staff/lecturers in UT's central office and provincial offices is only 236 (19% of all personnel), with education levels of S1, S2, or S3. Most UT personnel (78%) are graduates of senior and junior secondary schools, and 3% of them are graduates of elementary school.

By age, 70% of all UT personnel throughout Indonesia are young workers aged from 20 – 30 years. The remaining 30% are workers above 30 years; 12% of the total staff are above 41 years.

The non-permanent workers who also contribute to the UT programmes are tutors (2,300), module writers (333), and test item writers (526).

The rapid changes and development in UT's task and responsibility requires better capabilities and insights from its personnel. For this reason, staff development is necessary in UT. Several senior staff were sent abroad to have comparative studies of Open University Programmes in foreign countries. Several junior staff were also sent abroad to pursue more knowledge. Until now, about 20 staff had been sent to foreign universities to get master's and doctoral degrees.

5.6 Service Organization

As UT became operational, it was discovered that there were a lot of UT tasks that were not included in the formal organizational structure because of the different characteristics of UT compared to conventional universities. Therefore, to increase service to students, several Task Forces were organized:

a. UT Rector's Act No. 012/KR/1985 dated February 15, 1985 on the organization of Task Forces:
   - Campus Development
   - Staff Development
   - Computer Management
   - Regional Unit Development
   - Learning Material Production and Distribution
   - Cooperation and Communication Development.

b. UT Rector's Act No. 042/PT 45/Kep/86 dated 14 February 1986 on the organization of Development Team:
   - Learning and Educational Testing Material
   - Learning and Non-educational Testing Materials
   - Learning Material Revision.

C. EDUCATIONAL PROCESS by: Syaeful Mikdar and Nani Karyani

1. Course Development

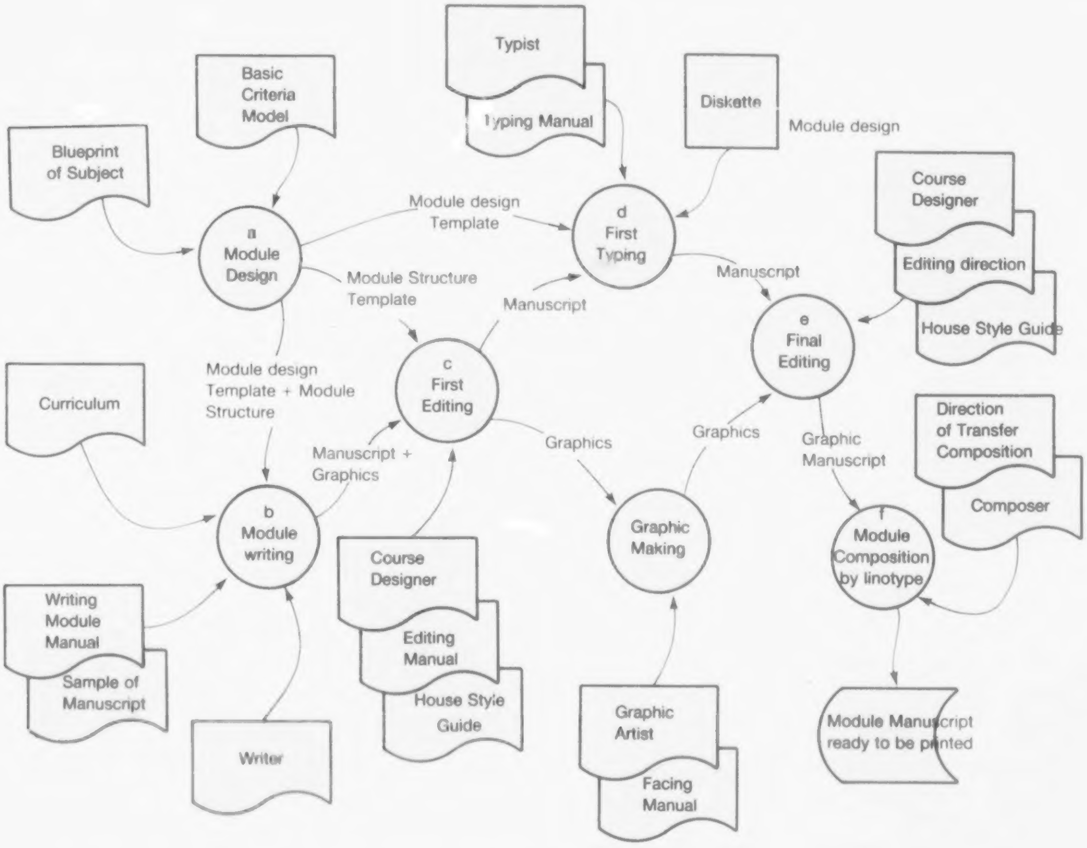
1.1 Process and Steps Taken

Unlike ordinary universities where teaching materials are presented face to face according to a schedule, the materials at the Universitas Terbuka, printed as well as not printed, are sent to students to be studied by them in their homes or local communities.

The learning materials of UT are developed by a team consisting of the Chairman of Programme Design/Dean, Programme Designer, Curriculum Expert, Writers, Language Editors, Media Expert, Content Expert and Reviewers. Module Writers are part-time workers and they are in general full-time lecturers and experienced writers of text-books used at conventional and well-known universities. Content experts, language editors and reviewers are mostly people outside UT. Most of the programme designers are full-time UT staff. The diagram below illustrates the steps in developing the learning materials:

a. The first step is to design a module aimed at guiding module writers to write modules.
b. The second step is to write a module, where inputs from the curriculum/course outlines are needed.
c. The third step, pre-editing, is done by programme designers. Inputs needed are manuscripts, templates of module designs and templates of module structures. The output is the text of the module to be typed.
d. The fourth step is typing by typists who follow module designs and manuscripts, as well as graphics and illustrations.

DIAGRAM OF LEARNING MATERIAL DEVELOPMENT
FLOW CHART



Typist
Typing Manual
Basic Criteria Model
Diskette
Module design
Blueprint of Subject
Course Designer
Editing direction
House Style Guide
Module design Template
d First Typing
a Module Design
Manuscript
Module Structure Template
Manuscript
e Final Editing
Curriculum
Module design Template + Module Structure
c First Editing
Direction of Transfer Composition
Composer
Graphics
Graphics
Graphic Manuscript
Manuscript + Graphics
b Module writing
Graphic Making
f Module Composition by linotype
Course Designer
Editing Manual
House Style Guide
Writing Module Manual
Sample of Manuscript
Writer
Graphic Artist
Facing Manual
Module Manuscript ready to be printed

e. The fifth step is final editing, involving proofreading, editing of manuscripts and graphs made by the programme designers.
f. The final step is to compose text to become a manuscript.

1.2 Educational Philosophy

It should be noted that the minimal requirement to become a UT student is an SMTA (senior secondary school) diploma, because UT only offers diploma and graduate programmes. As a University, UT, just like other universities in Indonesia, is expected to have academic staff and graduates with qualifications equal or superior to other universities. The examination system of UT at present relies on objective tests as there is a great number of students taking examinations and they are spread throughout Indonesia. In addition, self-check exercises are included in the modules. Their function is to help students in studying the content of modules, to support the retention of facts and to practise answering questions that may come up in the end of semester examination.

1.3 The Principle of Planning and Developing Instructional Materials

The General Instructional Objectives (TIU) and Specific Instructional Objectives (TIK) are provided to guide a module writer. The writer then elaborates them into subject materials. Exercises, as well as end of semester examination questions, are based on TIU and TIK of the materials. All the procedures are communicated and explained to the module writers in a workshop. The participants are required to make relevant course outlines during the workshop and then the writing of the module may be done anywhere.

If a writer has not followed the pattern outlined, the programme developer returns the draft to be revised. Two main problems arise when developing a module: it is not always easy to find a qualified and well-known module writer; and even if one is found there is no certainty that a draft can be completed in time. If a module writer is unable to finish a module, the dean tries to find a substitute.

The procedures above have some advantages: the materials are more presumably communicative for students, they are objective-oriented, and they include self-check exercises. UT's modules also attract many students and lecturers of other state and private universities because they are written by well-known lecturers from conventional state universities. Another advantage is that since UT materials are available for the people at large, the quality control is done by others outside the campus.

1.4 The Evaluation of Learning Materials

Since UT has been under time pressure to produce learning materials, there has been little chance to test them before they are used by students and tutors.

However, when complaints from students or tutors arise on certain modules, UT sends a group of its researchers to discuss their difficulties and suggestions. The information is then used to revise the modules.

1.5 Staff Training

So far, training has been given in course development, especially in writing learning materials and tests. However, it has been provided mainly to lecturers of conventional universities, since there is no strong intention for UT to have its own module writers. For UT staff, the training has stressed management aspects: the registration system, management of examinations, processing student and examination data, computer, etc.

1.6 Research in the Field of Teaching Methods

Little research has yet been done on teaching methods since UT during its early stages has focused more on the learning materials and examination systems development. Nevertheless, research on the tutorial system, especially face-to-face tutoring, has been underway for two years, conducted by the Centre for Research and Public Services at UT. It is aimed at answering research questions such as: how the Regional Units organize face-to-face tutorials; what problems they face and how they solve them; what are the strengths and weaknesses of the tutorial system, and so on. The study, now concluded, was followed by a correlational analysis to identify the variables which might be related to the success of a tutorial approach.

1.7 Feedback from Students

Feedback from students is obtained either through face-to-face tutorials or during evaluation of learning materials (see part 1.4). In addition, students write directly to UT headquarters or Regional Units regarding their academic as well as non-academic problems.

2. The Teaching Learning Process

2.1 Individual and Group Studies

UT students are required to study independently as soon as they receive their learning materials. They may study on their own or with fellow students or tutors in formal or casual study groups. They can also learn through TV and radio programmes and other media.

It should be noted that to pass an S1 programme a student must finish 146–150 credit hours which theoretically can be completed in four years. Preliminary observations show that on the average a UT student takes 12 credits per semester (17 weeks effective) or 24 credits per year and will thus require 6–7 years to complete an S1 programme. One credit consists of an average of 3 modules; each credit needs 40 hours of study, so that each year a student should spend at least 480/720 hours studying each semester. Meanwhile, for each course only two hours of face to face tutorials are made available. Those who join study groups spend an average of two or three hours per week or 40 hours per semester. Students who study individually spend 12 hours a week or approximately 240 hours per semester (Rosa Tosaini, at al., 1988).

We can thus conclude that individual learning still plays the most important role.

2.2 Some Characteristics of the System Applied at UT

The system at the UT tends to be flexible with the following characteristics:

a. SMTA graduates can register at UT any time, except during registration recess which is two months before examinations.
b. Examinations are held on Sunday and are given twice a year; each examination consists of two parts administered on the second and the third Sunday of the month. For each subject a student has two opportunities to take the examination. If students do not take the first exam they are still allowed to take the second one for a course in which they are registered. The second examination is regarded as a remedial examination.

c. Take-home examinations comprise a number of questions from each course which should be finished by students at home. This examination including the answer sheet are submitted together with the module. The time given is long enough, and each student is free to finish it up to the 15th of the month before the semester examinations is held. (This is done to force UT students to study all material they will face in the examination). The take home examination sheet (LJTM) can be directly mailed to the Regional Unit or UT head quarters.

d. Face to face tutorials are not compulsory and are only provided twice per semester, and not for all courses, but only given upon request by students through study groups, usually for a course that they find difficult to comprehend.

e. Students are not required to buy materials. Those who want to buy them can order them directly from UT headquarters, Regional Units, or bookshops.

2.3 Pacing Mechanism

The flexibilities of the system as described above lead students to determine their own pace for learning. A student can take from 3–18 Credit Semesters (CS) in one semester or 3–36 CSs in one year depending upon their personal circumstances such as time available, money, family duties, personal and work circumstances, etc.

In addition, UT has not set a maximum for years of study: a programme can be completed in even less than four years or in more than ten years. All courses relevant to a programme of study are offered in an examination period and this gives a student a greater variety of choices. A student can drop in or drop out any time and are considered inactive only when they have not registered for two consecutive years.

2.4 Examination and Evaluation

Generally multiple choice examinations are used at UT. Each consists of 60–90 items, given at the end of each semester. "Take home examinations" are also given and count for 20% of the final assessment while 80% is the proportion for semester examination results. Examinations are administered at the Regional Units or other designated places. There are at present 78 examination locations all over Indonesia. This examination is implemented by a Committee while the supervisors are generally Junior and Senior Secondary School teachers. Answer sheets and assignments are sent to UT headquarters to be processed and results are announced to the students through the respective Regional units or placed in post offices.

3. Delivery of Course Materials

3.1 Use of the Media

UT learning media are primarily printed materials which represent about 96% of the total. Other supporting media are audio tape 2%, TV 0.5%, Radio 0.5%, face to face tutorial 0.5% and SSB and Sistem Pendidikan Satelit (Sisdiksat) or Satellite Educational Systems 0.5%

3.2 Distribution Methods for Materials

The print and audio materials are distributed to students through post offices or private parcel services and by surface-mail or airmail.

Because of geographical problems, the materials are not only sent by regular transportation but also by sailboats, pioneer flights, or small sailboats. Mailing costs are included in the price of the learning materials.

Materials are normally sent to the students' homes, but for several reasons this can not be implemented fully. First, not all addresses can be reached easily by postman, either because addresses are not clear, or because the students live in remote areas. Secondly, there is very little time for mailing, because the learning materials are generally distributed at the time a semester starts. For these reasons some materials are sent to post offices in the cities and districts for the students to collect.

3.3 Broadcasting

Radio broadcasting for several courses is held every Thusday. UT TV programmes are transmitted every Monday for 25 minutes. Radio and TV broadcastings are transmitted by the Central RRI and TV National programme, so not only UT students, but also the people at large can hear the programmes.

3.4 General Assessment of Effectiveness

Distribution of modules by mail runs well. If there is a delay at all it is because the students live too far from the post offices, or because the student's address is not clear.

For big islands like Sumatra, Kalimantan, Sulawesi and especially for Jakarta, distribution by air and express mail are more effective.

Whether or not radio and TV broadcastings are effective is now being studied by UT. It is worth reporting that UT cannot use TV intensively since the programmes can only be transmitted twice a month and UT is offering nearly 400 different courses. Funding and expertise are also problems.

4. Technical Production

4.1 Production Unit

The materials production unit is divided into two sections: the print production unit which handles the printing of learning materials or modules and the results of the end of semester examination; and the non-print production unit which covers video, cassettes, TV, radio, single side band (SSB) and satellite.

4.2 Staff Mambers

There are 58 typists of modules and other materials, 50 printers, 12 audio visual staff and 29 distribution staff.

4.3 Scheduling

With 35 typists serving 4 Faculties, an average of 35 courses can be completed in two months. The process of printing from the final draft to its completion is as follows; modules 2 1/2 months, examination materials 2 1/2 months, answer sheet 2 1/2 months, cassettes for radio programmes as well as additional materials for students are completed within 2 weeks to 1 month, and distribution time is approximately 2 weeks.

4.4 Quality Control

Quality control for module content, examination materials, and video is the responsibility of each faculty. Quality control for module content involves other units/task forces: quality control for examination materials involves the Examination Unit and quality control for audio and video involves the Audio-Video Unit. The final checking of quality is done by each faculty. Faculties are also responsible for checking the final physical aspects of modules such as name of author, title and code number, table of contents, page order, binding quality, etc.

The Examination Unit is responsible for distributing the examination papers to Regional Units, the administration of examination in the regions, and the announcement of the examination results to students.

The Audio Video Unit is responsible for checking the content of material to be presented on TV and the quality of picture and sound.

4.5 Handling Production and Distribution

a. Video problems involve the delay of equipment, dependence of material on supply of consumed goods, and limited operational facilities (transportation).

b. Distribution problems include the number of items to be printed and prepared for distribution, because it is difficult to predict how many students will order materials. The subsequent problem is how to send the materials on time to students who are spread out over more than 6,000 islands.

c. Production problems
   - Modules may be incomplete with some components missing.
   - Modules come in great quantities at the same time so that typist can not handle the typing properly.
   - Drafts of modules are often written by hand, so that some are hard to decipher.
   - Graphs, definitions, tables are often not clear.
   - Word-processing errors may occur.
   - Spare parts like diskettes, tapes, wheels and paper are sometimes not available.
   - Break down of electricity.
   - Typing errors of operators.

5. Communication

Newspapers, letters, magazines, advertisements, letter from readers column, telephone and telegrams as well as telex are also used as means of communication to convey information from UT to the Regional Units or to the students and vice versa. The distance teaching system by satellite (sisdiksat) is also used to reach tutors in Eastern Indonesia. Cooperation with various institutions has been established to facilitate the communication systems.

6. Student Support

6.1 Administrative Assistance

The main medium which provides information about UT is the **UT Catalogue** which describes in detail information about registration procedures, purchase of materials, courses offered and how to select them, student fees, examinations, tutorials, etc.

In connection with the admission procedure, tuition and remedial examination fees and orders for learning materials, UT has signed a contract with the Directorate General of Post and Telecomunication. Students can register and pay student fees through post offices throughout Indonesia. The Regional Units located in 32 centers across Indonesia are also able to help the students regarding registration, examination, learning materials, and other inquiries.

6.2 Academic Assistance

At the present UT has no study centers of its own. However, some centers have been established by private institutions where students can participate in intensive face-to-face tutorials. Students are free to send letters or come directly to the Regional Units/UT headquarters if they have problems in studying modules.

There is no institutional counselling services for students yet. So far the most frequent contact is made through letters. Students are also encouraged to get directly in touch with the tutors.

While doing research or other official visits, staff of UT are expected to contact students so that academic-related problems can be discussed.

6.3 Monitoring Student's Progress

As a means of monitoring student progress, each student is required to complete the take home exam for each course as mentioned above. The answer sheet must be completed and returned to the Regional Units/UT headquarters on the 15th of the last month before the scheduled examination. Assignments received after that date will not be given any grade. The single most important component in checking student progress is the end of semester examination. All answer sheets are processed through an optical process device at UT headquarters. The time span between the implementation of the examination and the examination results received by the students is approximately two months.

D. COSTS by: Isfarudi, Tian Belawati and Soetrisno

1. Inputs

1.1 Recurrent Cost: Salary

Like any other higher educational institution, Universitas Terbuka (UT) is supported by both professional and technical staff as well as other support staff. The number of UT's employees now (including part-timers) is about 4,814 (See Table 7 for employee's classification), and the recurrent cost for salary is over US $ 1.5 million with classification as shown in Table 8.

Professionals and technical staff are those who have graduated from universities and colleges, while supporting staff are those who have graduated from diploma programmes, Senior High Schools, Junior High Schools and Secondary Schools. Those who are categorized as professional or technical staff may work either as academic or non-academic staff.

TABLE 7: Number of Employees in 1987

Status	Professional and Technical Staff	Support Staff	Total
Full time staff	282	1,034	1,316
Part time staff	3,498	–	3,498
Total	3,780	1,034	4,814

NOTE: Professional Part Time Staff include tutors, course writers and test constructors.

Professional Part-Time staff are spread out in several areas, but almost all of these staff are in Java. Most tutors, course writers and test constructors are hired from conventional universities but some others come from non-university institutions and UT itself.

TABLE 8:Recurrent Cost: Salary (US $) in 1987 (US $1 = Rp. 1,600)

Status	Professional and Technical Staff	Supporting Staff	Total
Full time staff	664,375	620,250	1,290,625
Part time staff	351,250	–	–
Total	1,015,625	626,250	1,641,875

1.2 Recurrent Cost: Non-Salary.

Besides recurrent cost for salary, UT also has to cover other recurrent expenses of running the business. These expenses include the cost for the maintenance of equipment, purchasing materials and supplies, paying for electricity, telex and telephone, producing course materials, developing final examinations and self-examination manuscripts, producing audio and video, distributing course materials to the students, etc. These expenses are shown in Table 9.

TABLE 9: Recurrent Cost: Non-Salary (US $)

Category	Average Cost/Year	Expected Life in years
a. Maintenance:		
– Computers 1)	45,000 *)	10
– UPS	9,000 *)	5
– Others 2)	31,875 **)	–
b. Electricity	25,625 *)	–
c. Telephone and Telex	38,750 **)	–
d. Audio and Video Production	35,625 *)	–
e. Material supplies	150,000 *)	–
f. Course Material Production	625,000 **)	–
g. Final and Self-Examination manuscript development	212,500 *)	–
h. Course Materials Distribution (Postage & Packing)	300,000 *)	–
Total	1,473,375	15

NOTE: 1) Including the maintenance of Mini-computers, micro computers (PC), Printers, Tape-drives, and the expenses for purchasing continuous form paper, disks, tapes, wheels, ribbons, etc.

2) Including expenses for maintaining and operating transportation vehicles, and maintaining premises.

*) Activity : Production.

**) Activity : Diffusion.

1.3 Capital Costs.

In general, UT's capital costs can be divided into two categories: premises and equipment.

1.3.1 Premises

The area possessed by UT is over 11 hectares, but the office and technical buildings are built on only 11% of it (12,242 m^2). The costs of these premises are shown in Table 10.

TABLE 10: Premises Costs

Category	Area (m^2)	Cost/m^2	Expected Life (year)
Land	115,927	6.25	–
Office buildings	4,702	156.25	20
Technical buildings	7,414	156.25	20
Other buildings	126	156.25	20
Total buildings	12,242	156.25	60

Office buildings are those which are used by executives or/and other UT staff who perform management duties and produce policies. These buildings are Rectorat Offices, Faculties, and Research Center. Technical buildings are those in which operational and technical activities are carried out. These buildings include rooms of computers, typing, printing, storage and distribution, registration, examination center, audio and video studio.

This differentiation is based on the general type of activity; often there is no clear line between which activities are technical and which ones are not. Moreover, both may be in the same building. For example, the main building is used both for faculties (which are categorized as "office") and typing (which is "technical").

1.3.2 Equipment.

Table 11 shows the capital costs of equipment

TABLE 11: Equipment Capital Costs

Equipment	# of Units	Cost/Unit (US $)	Expected Life
Mini-computer	2	118,125.00	10 years
Micro-computer	1	25,000.00	10 years
Personal computer	120	937.50	10 years
UPS	15	3,125.00	5 years
PABX	1	31,250.00	–
Telex	2	3,125.00	–
SSB	6	16,250.00	–
Printing Unit	1	165,000.00	–
Copy Machine	15	3,750.00	–
Type writer	75	312.50	–
TV Studio	1	93,750.00	–
Audio Studio	1	18,750.00	–
Photography	1	7,500.00	–

continued overleaf

TABLE 11: Equipment Capital Costs (continued)

Equipment	# of Unit	Cost/Unit (US $)	Expected Life
Furniture	Many	93.75	–
Bus	2	15,625.00	–
Car	3	4,375.00	–
Total	–	506,968.75	–

1.4 Free Inputs from other Institutions.

In carrying out its activities, UT is often supported by other institutions, either for activities which are directly related to the distance teaching process or for other supplementary ones. Those institutions which have been giving free inputs to UT are TVRI, RRI private local radio stations, SKSD Palapa. conventional universities, and schools. TVRI, RRI, private local radio stations, and SKSD Palapa provide UT with free transmission, while conventional universities and schools accomodate UT premises for Regional Centre Offices and rooms for tutorials. (See Table 12)

TABLE 12: Free Inputs from Other Institutions

Input	Average hours of use (per year)	Competing Demands
Access to TV station	10.83	Yes
Access to Radio station	1,014.00	Yes
(RRI + Private Local Radio Access to Satellite *)	1,248.00	Yes
Premises for Tutorials and Regional Centres **)	7,168.00	No

NOTE: * No longer available since January 1987

** There is no competing demands since tutorials are always held on Sunday.

UT programmes in television are transmitted through the Central Television Station of TVRI in Jakarta, and they are relayed by local stations throughout Indonesia. UT programmes are broadcast once every two weeks and the average time for each programme is about 25 minutes. Furthermore, there are 39 radio stations which regularly broadcast UT programmes. These stations include the National and Regional Programme of Radio Republic Indonesia (RRI) and several private local radio stations. The transmission is weekly and each programme is a 30 minutes programme.

The use of satellite facilities is particularly devoted to distance tutorials (SISDIKSAT) for areas in East Indonesia. However, this facility was only available for 2 years (1985–1986).

2. Outputs

2.1 Students and Graduates.

The number of students since UT was opened in 1984 until the recent year is 113,475 students, and they are divided between Degree Programmes (SI) and Diploma Programmes. However, UT has not graduated any degree students yet; but, it has produced 2,607 diploma graduates. Table 14 shows the number of active students in each academic year since 1984/1985 until 1987/1988.

TABLE 13: The Number of Active Students

Year	Degree Courses and Diplomas
84/85	42,099*
85/86	73,843
86/87	67,446
87/88	70,726

* Excludes Akta V anda LPTK Diploma Programmes

TABLE 14: The Number of Graduates

Programmes	84–87	87–88	Total
– Degree Courses	–	–	–
– Diplomas	2,607	–	2,607
Total	2,607	–	2,607

As shown in Tables 13 and 14, all UT courses are credit courses and the programmes offered are only degree (SI) and non-degree (Diploma I and II) programmes. UT has not offered Post Graduate and Certificate programmes yet.

2.2 Television, Radio and Audio.

Table 15 shows the number of television, radio and audio programmes which have been developed by UT.

TABLE 15: Television, Radio, and Audio

Programme	Total # of programme (March 85 – March 87)	Total # of programme hours/year	Net Additional programme (April 87 – December 87)	Net Additional programme Hours
TV Prod.	36	15	20	8.33
TV Trans.	1	10	–	–
Radio Prod.	870	870	–	–
Radio Trans.	39	936	–	–
Audio Prod.	266*)	266	–	–

*) The average number of copies produced per audio master is 2,049.

Each programme of both 25 minutes TV and 60 minutes Radio programmes represent one course. However, each radio transmission is only 30 minutes which is half of the programme. Some of the radio productions (266) are also copied into cassettes to be sent to students on an individual basis, and the rests are only broadcast on 39 radio stations. So, these radio productions includes audio productions.

2.3 Printed Texts.

Printed modules are the main medium used by UT in implementing the teaching process. However, the students are also provided with a monthly magazine (PAKET) as supplementary material.

The number of master pages of module production since March 1985 until December 1987 was 122,123 pages, or about 40,708 pages in a year. And, the total number of masters of Paket Magazines is 1,120 pages or about 373 pages per year. Module masters are duplicated on average as much as 1,000 copies per master, while Paket's masters are duplicated as many as 10,000 copies.

2.4 Study Centres, Residential Schools, Laboratory Sessions.

UT does not have its own study centres for students to study and meet their peers, but it has regional centres which organize the management of UT in local areas. These are the only places that resemble study centres.

These regional centres, as well as organizing the administration matters, also organize tutorials. However, these centres do not serve students with laboratory sessions and counselling. The total number of regional centres is 32 and the number of sessions that have been held up to date is 7,168 hours. Tutorials are held twice a year for about 28 courses for each tutorial session. Each course is given in four hour sessions.

2.5 Telephone Teaching.

Telephone teaching has been used in several regional centres, but it could not be maintained due to the cost. Nevertheless, telephone is still used as an information medium for both academic and administrative matters from the central office of UT in Jakarta to regional centres throughout Indonesia.

3. Sources of Finance

The main source of UT finance is the government, which provides over 3.8 milion US dollars (52.7%) per year. and the rest comes from student fees (US $ 1.86 million or 25.6%) and sale of study materials (US $ 1.58 million or 21.7%). See table 16.

TABLE 16: Source of Finance

Source	The Amount/year (in thousand US $)	Percentage
Government *)	3,838	52.7
Student fees **)	1,862	25.6
Sale of Materials ***)	1,580	21.7
Total	7,280	100.0

NOTE: *) Includes development and recurrent budget.
**) Includes tuition and examination fees.
***) Includes sale of modules and tapes.

Other sources of funding are CIDA, World Bank, IDRC Canada, and USAID. These supports are not received in "money" but rather in technical assistance such as consultants, scholarships, equipment, etc. The details of this funding are shown in Table 17.

TABLE 17: Other Funding/Support

Source	The Amount of Funding (in thousand US $)	Period (year)
CIDA (grants)	3,000.0	3
WORLD BANK	1,500.0	2
IDRC CANADA	36.8	—
USAID	3.0	—
Total	4,539.0	—

4. Cost of Specific Media/Teaching Methods

4.1 Recurrent Costs: Professional and Technical Staff

Recurrent costs have been previously explained in the Inputs Section. However, in this section those costs are depicted again based on the use of that. Table 18 shows that the use of costs are divided into three categories: Production, Diffusion and Reception.

TABLE 18: Professional and Technical Staff

Activity	The # of Staff		Recurrent Cost
	Full-Time	Part-Time	
Production	22	498	568,125
Diffusion	160	3,000	447,500
Reception	—	—	—
Total	282	3,498	1,015,625

Production Division for full timers includes: faculties, computer unit, research centre, examination centre, audio/video unit, registration, etc. Production activities for part-timers are: writing modules, constructing tests, writing audio/video manucripts. Those who are categorized in diffusion activities are professional and technical staff in regional centres (full-timers) and tutors (part-timers).

As shown in Table 18, production recurrent costs are over half million US dollars per year and diffusion recurrent costs almost reach the same amount. The total recurrent cost for Professional and Technical staff is US $ 1,015,625 (see also Table 8).

4.2 Recurrent Costs: Support Staff

Recurrent Costs for support staff is over six hundred thousand dollars which consists of US $ 295,000 for production and US $ 331,250 for diffusion activities (see Table 19 and Table 8).

TABLE 19: Support Staff

Activity	The # of Staff		Recurrent Cost (US) $
	Full-Time	Part-Time	
Production	487		295,000
Diffusion	547		331,250
Reception	—		—
Total	1,034	—	625,250

Production Division includes: General Administration Bureau, Audio/Video Studio, modules production unit, printing unit, and others which are directly related to production activities. Diffusion division, on the other hand, include regional centres, distribution unit, student services, registration, etc.

4.3 Recurrent Costs: Non-Salary

Production costs for non-salary items include expenses for computer and UPS maintenance, electricity, audio and video production, materials and supplies, course production, and test production; while non-salary diffusion costs include expenses for course material distribution, telephone and telex, and other recurrent expeness (see again Table 9).

4.4 Free Inputs from other Institutions

As a matter of fact, the free inputs depicted in Table 13 are all categorized as production activities.

4.5 Capital Costs

4.5.1 Buildings

As shown in Table 11, the average cost of both office and technical buildings is US $ 156.25. Since office buildings are those which are used to do management matters and produce policies, all of (4,702 m^2) them are categorized as production division.

Technical buildings, on the other hand, are used to do both production and diffusion matters. Besides, there is another building which is used for the house of the Rector of Universitas Terbuka.

TABLE 20: Capital Costs of Technical Buildings

Activity	Area (m^2)	Cost/m^2	Expected Life (year)
Production	3,312	156.25	20
Diffusion	4,102	156.25	20
Reception	–	–	–
Others	126	156.25	20
Total	7,540		

4.5.2 Equipment

The capital cost of equipment has been shown in Table 11. These costs are here depicted based on the activities.

TABLE 21: Capital Costs of Equipment

Activities	Equipment	# of unit	Cost/unit (US $)	Expected Life (year)
Production	Minicomputer	2	118,125.00	10
	Microcomputer	1	25,000.00	10
	Personal computer	120	937.50	
	UPS	15	3,125.00	
	Printing Unit	1	165,000.00	
	Copy machine	15	3,750.00	
	Typewriter	75	312.50	
	TV studio	1	93,750.00	
	Audio studio	1	18,750.00	
	Photography	1	7,500.00	
	Furniture	many	93.75	
Diffusion	PABX	1	31,250.00	
	TELEX	2	3,125.00	
	SSB	6	16,250.00	
	Bus	2	15,625.00	
	Car	3	4,375.00	
Reception	–	–	–	
Total	–	–	506,968.75	

5. Cost Analysis

5.1 Fixed Costs

The fixed costs here are only the fixed cost for 1987, which are accounted in January 1988.

TABLE 22: Fixed Costs (1987)

Items	Costs (US $)
Salary fcr full time staff	1,290,625.00
Non-salary:	
– maintenance of computers, UPS, and others	85,875.00
– electricity	25,625.00
– Telephone and Telex	38,750.00
– Office material supplies	150,000.00
Land *)	724,543.75
Buildings **)	1,726,313.28
Equipment ***)	381,082.83
Total	4,422,814.86

Note:
*) no depreciation since it was bought
**) after 2 years with depreciation 5%/year
***) after ± 2 years with depreciation 13.3%/year.

5.2 Variable Costs

TABLE 23: Variable Costs (1987)

Items	Cost (US $)
Salary for professional part-timers	351,250.00
Audio and Video production	35,625.00
Course materials production	625,000.00
Test production	212,500.00
Course distribution	300,000.00
Total	1,524,375.00

5.3 Total Costs

Total costs are:

Fixed costs = US $ 4,422,814.86
Variable costs = US $ 1,524,375.00
Total costs = US $ 5,947,189.86

5.4 Analysis

5.4.1 Fixed costs per student

$$= \frac{\text{Fixed costs}}{\#\ \text{of students}}$$

where the number of students is the average number of students who are registered in 1986/1987 and 1987/1988.

Fixed costs per student

$$= \frac{\text{US \$ 4,422,814.86}}{62{,}593} = \text{US \$ 70.66}$$

5.4.2 Variable costs per student

$$= \frac{\text{Variable costs}}{\#\ \text{of students}}$$

$$= \frac{\text{US \$ 1,524,375.00}}{62{,}593} = \text{US \$ 24.35}$$

5.4.3 Total costs per student

$$= \frac{\text{Total cost}}{\#\ \text{of students}}$$

$$= \frac{\text{US \$ 5,947,189.86}}{62{,}593} = \text{US \$ 95.01}$$

5.4.4 Audio-video Production per hour

$$= \frac{\text{Production cost}}{\text{the }\#\text{ of hours programme}}$$

$$= \frac{\text{US \$ 35,625}}{893.33} = \text{US \$ 39.88}$$

5.4.5 Course materials production cost per page

$$= \frac{\text{Production cost}}{\text{the }\#\text{ of pages}} = \frac{\text{US \$ 625,000}}{41{,}081{,}000} = \text{US \$ 0.015}$$

5.5 Comparison To Other Universities

Table 24 shows the comparison of Annual Cost per Student between Conventional Universities and UT.

TABLE 24: Average Total Annual Cost per Student

Sector	Total Annual Cost per Student Conventional Univ. *) Public	Private	(US $) UT
All kinds of field of study	175.00	214.88	95.01
Four fields of study equivalent to UT's	206.00	255.00	95.01

*) Data excludes cost for land.
Source: *Indonesia Education and Human Resources, Sector Review, Vol. I.* Coordinated for the Government of Indonesia by The Ministry of Education and Culture with The United State Agency for International Development (USAID), P. 2–163.

This table clearly shows that the total cost per student of UT is much less that of both public and private conventional universities.

E. EDUCATIONAL OUTCOMES by: Zainul Ittihad Amin

1. Student Performance

1.1 Enrollment

The open registration system in the Universitas Terbuka has led to the ever-changing number of students since there are new students registering every day. Student categories also change every day, e.g. active to passive, passive to active and passive to drop out. The students are classified into two categories:

a. Active students, consisting of new and old students.
b. Passive students, i.e. those who do not register within less than two year period.

The description of the development of students who register in UT, particularly during the first year of UT, has been discussed in the previous chapter (INPUT).

1.2 Retention Rates

Using the 1984/85 COHORT samples, it was found out that there were 60.5% of students who regularly register from the first to the fourth semester; 19.8% register only in the first semester; 10.7% register only in the first and the second semester; and 9% register from the first to the third semester. There were also many students who quit because they were admitted to other state universities or because they did not have enough money to continue their study.

The mobility of the students changing their majors is also interesting. Applied statistics, for example, is the most avoided major. More than 45% of students who change their majors are from Applied Statistics. About half of them choose Public Administration as their new major. It makes Public Administration favorite among UT students. Most of the students who change their majors are between 25 and 29 years old.

Most of the students who did not register consecutively from the first to the fourth semester were of the opinion that the volume of the module/learning materials was too much and difficult for them. They also mentioned that the poor results of their tests decreased their motivation. A self-instructional learning system is another factor that also led to their decreased motivation. This conclusion was based on the fact that a large number of students said that they could not study in a self-instructional learning system. Family and job-related problems also inhibit their study in UT.

1.3 Completion and Pass Rates

Up to 1987, 357 students from the Educational Programme, which is inservice teacher training, had graduated from UT. This means that UT on average graduated 119 students every year. For the Educational D II Programme, UT had graduated 2,250 students or 750 on average per year from 7 majors in 13 distance-learning units. So far UT has not graduated any students from the Non-educational Programme. However, it is estimated that by the end of 1988/1989, there will be several students from this programme who will complete their study.

To understand the students' progress on a course, a study involving all students who took tests in 3 different courses was conducted. The 3 courses are: Basic Cultural Science, 3,899 students; Introduction to Macro-economics, 1,042 students; and Introduction to Law, 3,932 students. The study shows that 92.28% of the students passed the test. The score distribution was as follows: 1.55% got A; 9.83% got B; 44.23 got C; 36.67% got D; and 7.72% failed. (Table 25 presents the findings.).

TABLE 25: Examination Result Remarks.

No. courses	Number of participants	Grade distribution (in %)					pass	fail
		A	B	C	D	E	%	%
1. MKDU 4101 B.C.Sc.	3,899	0.25	7.13	48.03	39.36	5.20	94.80	5.20
2. EKON 4110 I.MAC.EC.	1,042	1.91	7.67	35.12	41.10	14.20	85.80	14.20
3 ADNE 4213 INT.LAW	3,923	2.49	14.67	49.54	29.55	3.75	96.25	3.75
TOTAL	8,873	4.65	29.47	132.69	110.01	23.15	272.85	23.13
Average	–	1.55	9.83	44.23	36.67	7.72	92.28	7.72

Even though most of the students passed the test, the scores they got were concentrated at C and D. The number of students who got A and B in pure science such as Mathematic was even smaller.

In October 1987, UT also conducted a study by taking 100 students as a sample. The study was based on the students' test scores in Mathematics I. The study shows that 55% of the students passed the test and the remaining 45% failed. The score distribution is: 3% got A; 1% got B; 5% got C; 46% got D; and 45% failed.

2. Programme, Content and Service

In a relatively short time, UT has produced about 367 modules. These modules are available in certain bookstores or in the Regional Units or one can order them directly from UT's central office. UT also offers its assistance to other institutions in developing learning materials. The instructional technology developed by UT is becoming popular among other institutions. For example, the State Ministry of Woman Affairs, the Ministry of Religious Affairs, and the Directorate of Community Education have collaborated with UT to develop modules they need for their programmes.

In addition to printed learning materials, UT has also produced audio and video cassettes to be broadcast on TV. UT also offers service covering the following areas:

TABLE 26: Type of Programme Services Provided by UT

No.	Type of Programme	Target
1.	The development of educational training programme	– Government institution – Private institution
2.	Graphic setting	– Government institution – Private institution
3.	Scanning Computer	– Testing Center – Public
4.	Testing/certification	– Other universities – Public
5.	Audio/Video/Photography	– Public
6.	Research/Assessment	– Government/private institution
7.	Data Processing	– Government/private institution – Workshop
8.	Educational consultancy	– Educational institution – Public
9.	Testing	– Educational institution – Public
10.	Printing	– Public
11.	Seminar/workshop	– Special group

3. Changes in Educational Philosophy and Practice

3.1 Its Impact on the Conventional Educational System

The module-writing technology applied in UT is considered a new technology at least in Indonesia. As has been mentioned earlier, almost all UT module writers are senior lecturers from several prominent universities in Indonesia. Their involvement in UT programmes has brought some positive impact, such as:

a. The University lecturers have the opportunity to develop a new strategy in writing learning materials. The lecturers realize that this opportunity is so important for them that they do their best to produces good modules. They also realize that the modules are read not only by UT students, but by the community as well. This activity, directly or indirectly, will improve their knowledge and skill in writing.

b. Since the module writers are lecturers in conventional universities, it will be practical for them to recommend their students to read UT modules. A research by Mahfud Syahbuddin et.al (1986) shows that UT modules are used not only by students in state universities, but also by students in private universities throughout Indonesia. Thus, UT modules enrich the learning sources for other private and public universities in Indonesia.

c. The Standardized tests used to measure students' learning achievement also play an important role. The standardized test and learning materials in use at UT have attracted conventional private universities to take state examination through UT. At present, the state examination at UT is given only to private universities under the aegis of KOPERTIS III, (Coordinator of Private Universities for Region III, Jakarta). In the near future, it is likely that there will be more private universities taking state examinations through UT. This demonstrates that the UT system in general and the quality of its programme in particular have been acknowledged.

d. The science kits for practical purposes developed by UT can also be utilized by other state and private university students in Indonesia. Other facilities such as the scanning computer, certification, consultancy, and training programme for state/private university lecturers are also available at UT. The philosophy of education has also changed. Previously, educational practice was what was done in the classroom, but now it can involve distance-learning systems. Without this system many people cannot improve their education, such as employees, those who live in rural areas, aged people, or handicapped people. This distance-learning system is a complement to the national educational system.

3.2 Its Impact on the Non-Conventional Educational System

The influence of UT's existence can also be traced in non-formal education. Up to now, UT has produced about 367 modules for different courses. These modules are available for sale in 32 Regional Units and in the bookstores belonging to a private company. This enables the community to get the modules very easily. Consequently, it also enables the community to learn any course in the module without having to go to a formal educational institution. UT can also function as an institution to issue certificates for English, Computing, Accounting, and other courses. Other non-formal educational institutions such as vocational and non-vocational courses can also use the modules for their programmes. The government/private institutions that have benefitted from the existence of UT are:

a. Ministry of Health in the development of health education programme through distance-learning system.
b. National Family Planning Coordinating Board in the development of a module for a training programme to improve its employees knowledge throughout Indonesia.
c. State Ministry of Woman Affairs in the development of modules for improving the knowledge and skill of its employees.
d. Bank Central Asia in the development of modules and video programme for improving its employee competency.
e. "17" Foundation in the development of modules as learning materials in the field of communication.
f. Melati Foundation in the development of modules as learning materials in its educational programme.

4. The Impact of UT on the Community

The existence of UT in the higher the education world has had a wide impact on the community. UT academic programmes or the news about UT itself can be viewed, heard or read through mass media such as TV, radio or newspaper. Tutorial programmes on TV/radio twice a month can be followed not only by UT students, but also by the community throughout Indonesia. UT programme on TV that are broadcast right before the World News are very popular among the viewers. While waiting for the World News programme, they oan watch UT programme. The TV programme will directly or indirectly improve the viewers' knowledge on the topic being presented. For housewives, who previously had difficulty in going to formal educational institutions, UT helps them in solving this problem. UT inspires them to increase their knowledge by following UT programmes on TV or radio. Based on an interview done with several people, it was found out that the existence of UT programmes is capable of improving the community's consciousness about education. They now realize that higher education is available not only in the formal educational system with its complicated requirements, but also in a distance-learning system with its flexible requirements.

F. TRENDS AND PRIORITIES by: Subandijo

1. Trends

One main issue to be discussed in this chapter is enrollment, because UT cannot be separated from its responsibility as an alternative university, assigned to take in as many Senior High School (SHS) graduates as possible. The success of other national Open Universities in taking in SHS graduates seems to have encouraged the board of the Ministry to open the Open University in Indonesia in some haste.

This cannot be separated from the target of the development of the higher education system in Pelita (Five Years Development Plan) IV which intends to increase the rate of participation of SHS graduates at higher education from 5 to 7%. This means that if we start from a basis of approximately 400,000 students at state universities and 300,000 student at private universities by the end of the previous Pelita III, the total enrolment by the end of Pelita IV should be 1.5 million students (Amijaya, 1984).

The major obstacles to the development of the higher education system have been the very limited number of experienced professors and lecturers and the crowded learning facilities for the students, especially classrooms. It has not been possible, therefore to reach the enrolment target by depending on the existing facilities only. The Open University is meant to overcome these two obstacles faced by higher education in Indonesia. This alternative system of higher education is innovative and has been proved successful in several countries like England and Thailand.

In 1984, based on the enthusiastic response to UT, it was believed that the 7% participation rate could be reached easily. At the time of registration for first year students in 1984/85, UT had not less than 200,000 candidates who registered through Sipenmaru (University National Entrance Examination) and 65,244 who registered directly through post offices. In the second year UT still drew more than 100,000 candidates.

Based on these figures, the UT board dared to project that within the next five years UT would be able to enrol 500,000 based on the assumption that each year UT would admit 100,000 students (Suparman, 1985). This meant that UT would have to admit almost twice as many new students as all state universities (including IKIP) combined. These institutions each year accept only 54,000 new students.

This optimistic prediction was proven wrong. In the third year the number of students that registered dropped drastically and in the fourth year it dropped even further to only a few thousand new candidates. This trend seemed to be a national symptom, in the sense that other state universities experienced the same decline in the number of Sipenmaru (University National Entrance Examination) participants. Only 454,011 candidate students took the written Sipenmaru examination in 1987; a decline of 22% compared to the 586,521 participants who took the test in 1986. (Kompas, January 22, 1988). So far no official explanation has been given as to why the number of Sipenmaru participants dropped so drastically. This may be a symtom of a passive attitude among SHS graduates towards continuing their study.

Thus, UT's national mission to take in as many SHS graduates as possible in the years to come will encounter many problems if UT does not take immediate steps to attract more students. Steps have been taken to deal with the tendency of the decreasing enthusiasm of SHS graduates to continue their study, especially in relation to UT, so that UT can fulfill its national mandate.

One stategy taken is to improve the internal management system at UT headquarters while enhancing the management system in the 32 Regional Units. Their first objective is to increase the academic and social interaction among UT students, one of the aspects considered a weakness from the outset. There is also a need to develop the use of communications technology and the student support system.

2. Priorities

There are at least four priority activities to be carried out: namely, developing a learning center or mini campus, developing a laboratory and science kit, developing quality learning materials and establishing a computer network to give better service to students. These projects will involve cooperation with foreign countries. For example, the greater part of the funds will come from CIDA and from national private sector investors.

2.1 Learning Centers (PKB)

The development of learning centers, to be further called PKB, is considered important because until now services to students have been inadequate. With the PKB it is hoped that there will be closer interaction between students and the institution.

CIDA will develop three PKBs as pilot projects. These places are expected to provide students with tutorials, printed and non-printed learning materials, computer services and others. It is also hoped that as shown by Rekkedal (1985), the completion rate of students will improve, students will study more actively and as a result, obtain more academic credits.

Nevertheless, the development of PKB requires carefull planning because not all students will be able to attend PKB. The data shown by Bates (1986) indicate that 25% of the U.K. Open University students never attend study centres. Furthermore, Jones and O'Shea (1982) have shown that students who attend such centres often use their time inefficiently. Adding facilities may reduce some problems, but it may also create new problems which are not less complicated, problems such as increased maintenance costs, student dissatisfaction with inadequate space, and so on. It should be noted that PKBs, such as those in England and other countries, are usually run in collaboration with another institution. It is unlikely for UT to own and manage a PKB by itself; thus cooperation with other institutions in more settled regions is necessary. This consequent dualism in management, as well as frictions of interests among institutions, may pose problems of another kind that are hard to overcome.

2.2 Development of a Laboratory and Science Kit

As part of the higher education system, UT should be able to act as a connecting mechanism between the world of knowledge and technology and the aspirations or needs of the society. Therefore, the higher education system should function as a national instrument to improve and develop the Indonesian people's quality of life. Consequently, the study programme offered by UT should be a study programme that can increase professional expertise and for this purpose an adequate laboratory where students can work intensively is needed.

But this means that laboratory tasks in the sense of conventional higher education is contradicting the nature and/or essence of UT as a distance higher education. What is more, the establishment of a laboratory not only needs money, but it also limits UT's scope because it forces the students to attend the available facilities. This could well inhibit the objective of UT to opportunity for higher education regardless where students live.

The above phenomenon is not entirely true if we study it further. Toward the end of this decade there is a strong tendency to use what is so far known as the distance learning procedure towards on campus students, as suggested at the World Conference of the International Council for Distance Education in Melbourne in 1985. One of the procedures is contract learning that requires on-campus students to study part of the lecture material independently and another part through face-to-face teaching. Another example is the rapid growth of the use of distance learning material by on-campus students and the use of information technology which enables on and off-campus students to utilize computer terminals and a combination of microcomputers and telephone communication. In this form the difference between traditional education and face-to-face communication becomes less marked.

Practice in the laboratory will be very useful for students in the final semester who will soon complete their study, to consolidate the knowledge they have. The final tasks the students need will be done in this laboratory. For this purpose the students will work in the lab for a few months. In this case UT can learn a lot from USM (University Sains Malaysia) which has enough experience in managing a combined education of an off and on-campus programme, especially for mathematics and science.

Practical work problems can partly be overcome with the use of experimental kits. The same approach was tried at the Free University of Iran but proved not very practical for several reasons:

a. Kits are expensive and students do not always need them.
b. The distribution of kits needs special management different from the distribution of printed modules. Usually kits consists of things that are fragile (electronic kits) and often endanger the students' safety if not carefully handled, e.g. when working with chemistry kits.
c. The Education kit needs a special design which is seldom found in the market, so that there is a great need for investors who dare to take a risk to invest in great quantities. In USA itself there are only few investors who dare to do so.

2.3 Learning Materials

One of the main tasks of UT is to produce learning materials with very high quality to be used independently without the help of a tutor, except for several special subjects that need a lot of computation. Due to limited funds and a shortage of qualified staff it is not realistic to attempt to do this too radically.

The learning materials needed by UT must not only be carefully structured but must also be considered from other aspects like tone, style and readability. There needs to be more use made of concept mapping, self-check in-text questions, study guide and graphic communication. The physical form of UT modules has already fulfilled one of the criteria above, that is to say, they are structured but the other criteria seem not to be fulfilled.

It must be admitted that making these learning materials is not easy. As a consequence of a cut in the development budget, the dependence of UT on module writers who are not from UT is being sharply felt.

It is not easy to find good module writers who are aware of all the criteria mentioned above. Our experience so far has shown that many module writers do their work in a hurry and must be given a high incentive to finish the module. In line with the increasing need for learning materials, we no longer fully depend on domestic module writers. To overcome this problem, therefore, it is necessary to change the strategy of providing modules. One step that might be taken for several subjects is to provide textbooks through cooperation with foreign institutes and invite the private sector to act as investor. One example being considered at the moment is cooperation with Cambridge University to translate Cambridge English Language materials and use them as a UT module. Students taking this subject would get a UT certificate and can take a qualifying examination which is organized by Cambridge University.

At present UT is the biggest publisher of learning materials of higher education in Indonesia. This has been achieved in the relatively short time of three years. There is a great potential to become even bigger because there is still a great shortage of textbooks in Indonesia for higher education. It is therefore not surprising that many learning materials printed for the use of UT students are also used by students of other higher education institutes. To fulfill the demands of this market and because competition of other publishers in the future will increase, UT needs a modern electronic publishing system.

2.4 The Computer Network.

Within a short time UT headquarters will have a new computer system which is much more modern than the computer used at this moment. The computer is to be a Data General MV 15000 super mini-computer with a OAS/VS operating system that is able to handle approximately 70 terminals. With this more modern computer system the desire to have a computer network that relates UT headquarters more effectively to the Regional Units can soon be realized.

One objective of the development of a computer network is the attempt to decentralize the current system at UT by giving more authority to the Units, particularly in student registration. In each Unit a terminal will be located and connected to the central computer in UT headquarters by satellite. Through the available terminal the Unit staff can enter data on new or continuing students without having to send registration forms to UT headquarters in Jakarta. In this way it is expected that errors in registration will be reduced.

Another advantage of this computerization will be its ability to speed up the management of examinations which is presently very slow. Not a few students have withdrawn from UT because of this factor (Subandijo and Sulistiorini, 1987). With the computer network, the Units can contact UT headquarters and answer the students' inquiries about the result of their examinations even when not all the examinations have been processed.

The rapid growth of computer technology by the end of the 1980's has been very advantageous for UT. The use of computers has recently increased and so has the type of application. The computer will be very useful for both UT and Units especially in reducing routine jobs which will eventually also reduce the load of work of the central computers. Once the computer network has been established, the Units can be connected to each other and the exchange of data between headquarters and Units should be more efficient.

One immediate result expected is an increase in the capacity of educational staff to analyze data and an improvement in the quality of the data for analysis. With more and more reliable data, information and projections made by UT should be more accurate. There will also be more opportunities for research so that the notion of UT becoming a training center for researchers on distance learning in Indonesia and Asia might be fulfilled.

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